THE CHEMIST AND DRUGGIST.

Vol. II.] APRIL 15th, 1861. [No. 20.

AMERICAN FINANCE.

According to public report, and the general tenour of our last private advices, the American difficulty will probably be got over without bloodshed. The South will divide from the North, and the Disunited States will form themselves into two great and powerful countries. In the South we shall find the seventeen slave states, representing, according to the census of 1860, a free population of eight millions and a half, backed by a slave population of four millions—making together a mixed population of nearly thirteen millions. In the North we shall find, according to the same census, twenty-three states, representing a free population of rather over nineteen millions. The world, at least that portion of it which has always preached against the exaggerated horrors of the slave trade, without one word about compensation to the holders of that class of property, will not be scandalised by the spectacle of negroes fighting willingly for their masters. "Uncle Tom's Cabin," and a million of similar books, tracts, pamphlets, and reports, will obtain a new lease of life, glad to escape from a revolutionary shock which threatened to expose them as blind-guides and impostors. The friends of tyranny and reaction in Europe are biting their fingers with vexation, because a democratic and popular country—a country represented as being torn to pieces by a criminal trade in human flesh, and bristling with bowie-knives and revolvers—has set an example of moderation and prudence under the most trying circumstances, which those who live under the heel of despotism must admire and envy. If such a struggle had been going on in Austria, France, or any one of the great military states, what would have been the speedy result? We should not have heard, mail after mail, of conferences, propositions, and the peaceful march of events, but of instant barricades, universal terror, massacres, fire, famine, and slaughter. The two brothers—North and South—have resolved to separate; they are each strong enough to stand alone, and to make their influence felt in any part of the world. As far as the political part of the quarrel has gone, there is nothing that an unprejudiced observer can find fault with; but when we come to the economical part—the two rival prohibitory Tariffs, we are sorry to recognize such a backward movement in free trade and sound finance.

If the pilgrim fathers of protection had migrated in a body to the Disunited States; if Chowler were rampant in Washington, and the shade of Sibthorpe in Montgomery, we might have expected such suicidal degrading measures as the Morrill Tariff, and its Southern imitator. The latter, with the exception of the export duty on cotton, is more liberal by fifty per cent than the former, but it is still unsound, and anti-progressive in spirit. The Northern Tariff has become law, for the present, though our private advices and public reports give us hope that a few weeks will witness the inauguration of a financial policy far more beneficial to the country. The list of articles taxed with different degrees of permissive and prohibitory duty is so long, and so complicated, that it has scared even the largest of our daily contemporaries from publishing it. We propose to give an analysis of its contents—showing only the taxation of those articles in which our trade is interested—as soon as we feel sure that it is likely to become law for a time, and not a mere piece of temporary, foolhardy legislation, springing out of a quarrel, and produced to spite the "shop next door." At this moment we do not think it necessary to encumber our pages with a mass of dry, mean, and often ridiculous details, which may be swept away in a few days under wiser counsels, when the two divided members of the new firm shall have settled down quietly and energetically in their separate lines of business.

The Southern Tariff, which, according to despatches, is not to come into force until May, we shall also analyse, if its provisions should prove to be of a tolerably permanent character. We only hope in the interest of the great American people, and for the growth and welfare of a country which, divided or undivided, gives such hopeful promise for the future, that the sound sense which must lie at the bottom of all American institutions will again make itself heard in international finance. At a time when our tariff has been clipped and lopped, until from containing a thousand and more articles it now scarcely contains fifty, it is a sorry spectacle to see a great free country going back fifty years in a financial policy that can only check trade, and impoverish the working, growing people.

THE EXHIBITION OF 1862.

In a twelvemonth from this time—a period that soon whirls round—the second Great International Exhibition will be opened. Every centre of industry in England, Europe, Asia, and the Colonies, is now busy preparing for a display in which it hopes to be well represented. The ground is already broken, the plan of the building is arranged, and applications for space are already being made to the Commissioners. Certain branches of industry, of course, demand a foremost position, by virtue of their attractiveness in a spectacular point of view, while others have to rely upon less obtrusive qualities. Amongst these latter we may place pharmaceutical products, both raw and manufactured,—a branch of industry which was very sparingly represented in the Exhibition of 1851. Druggist's sundries, and a variety of patented or ingenious articles, all bearing more or less upon the trade in drugs and chemicals, will doubtless fight their way to a prominent place; but unmanufactured drugs and purely chemical products will do well if they secure as much space as they had in the Paris Exhibition of 1855, and use it far more judiciously. A great deal depends upon the arrangement of articles exhibited, as every practical trading man knows, and we have much pleasure in quoting some sensible suggestions of Mr. Daniel Hanbury, of Plough-court, Lombard-street, addressed to the Society of Arts at the beginning of the year.

Mr. Hanbury proposes to divide the purely chemical part of the Exhibition into two heads, viz.—*Unmanufactured drugs*, and *Chemical and pharmaceutical products*. He suggests that specimens of raw drugs sent from foreign countries should be carefully packed, to guard them against humidity; that they should be carefully examined upon reaching London, so that spoiled specimens may be rejected; and that suitable jars and cases should be selected in which to exhibit them. These may seem very matter-of-course directions that would be followed naturally, but the experience of two Exhibitions has proved that such small details are always largely neglected. He wishes to see every parcel not only labelled in the clearest manner, but each series of specimens accompanied by a list, giving fuller particulars than can be stated on a wrapper. In the case of a drug that is little known, it is desirable to have the native as well as the scientific name.

"In the Paris Exhibition of 1855," Mr. Hanbury says, "some of the products were tied up in bags; others were enclosed in stone-ware bottles; while a vast number of specimens from Ceylon, Java, Sumatra, and other islands of the Indian Archipelago, were destitute of intelligible labels, and wholly unarranged. The pharmaceutical raw products of some important countries were entirely unrepresented, and while there were admirable collections from French colonies, and from some of our own colonies, almost nothing was contributed by Brazil, our settlements in China, the West Coast of Africa, the Island of Trinidad, &c."

Under the other and larger division of *Chemical and pharmaceutical products*, Mr. Hanbury hopes to see a greatly advanced display, and we join in his expectations. Manufacturing chemistry has certainly made vast strides during the last ten years, and if there should be a lack of exhibitors under this head, it will not be from a lack of material. Mr. Hanbury suggests that enormous specimens should be avoided, as quality not quantity is what we wish to see exhibited. Gallons of sulphuric acid, cases of cod-liver oil, and such mistakes on the part of the exhibitors, only serve to bring such displays into contempt as mere shows, answering no scientific end or purpose. Mr. Hanbury also objects to brilliant specimens, which are no evidence of special skill on the part of the manufacturer. This part of the Exhibition ought not to be like a toy shop or a sweet-stuff warehouse. As he very truly says, "of how much greater scientific value was the series of Dr. Frankland's organic radicals in the Paris Exhibition, than the heaps of glittering bismuth that so plentifully decorated the cases of many of the French chemical manufacturers."

It would seem scarcely necessary to suggest that the bottles for containing specimens should be transparent, and not too elaborately cut; that the labels should not be pasted all over the glass; and that the covers should not be sealed up, except where essential for the preservation of the specimens. The catalogues of 1862 we hope to see much fuller than those of 1851, in all departments, and especially in those containing raw materials. The chemical portion of the Exhibition will have less of a trading and more of a scientific character than most other departments in the building, and it ought to be arranged, watched, and directed accordingly. If any of our readers have any suggestions to make under this head, we shall be most happy to receive and record them.

UNITED SOCIETY.—NOTICE TO THE TRADE.

Since the successful and influential meeting at the London Coffee-house, Ludgate-hill, on the 23rd of January, 1861, the Executive Committee and the energetic Secretary of the New Society have not been idle. In our last number we had nothing sufficiently definite to report to make a special paragraph, but the work was going steadily on, notwithstanding. In a society of this kind, the component parts of which are scattered all over the country, it necessarily takes time to communicate with present and future members; and though our Journal is freely and cheerfully placed at the service of the promoters to aid them in this task, we only appear once a month, and so far our assistance is limited. Of the eight hundred members who had joined the Association, according to the last account rendered, one half belonged to the provinces, and the Committee are very properly anxious that absent friends shall be as fully consulted and represented as the metropolitan adherents. In all their applications to the various gentlemen of influence and standing requested to act as president, vice-presidents, treasurers, auditors, &c., of the New Society, they have been governed by the desire to see every class, or interest connected with the trade, possessing a mouth-piece and guardian at the Board. Mr. Alderman Dakin, of the well-known firm of Dakin & Co., wholesale druggists, Abchurch-lane, London, has kindly consented to act as president, and the Society may be warmly congratulated upon this acquisition. The official position of this gentleman as a leading member of the chief corporation in the world, although his least qualification for the chair he has been asked to fill, will not be without its value in helping the Society forward. From a long list of vice-presidents, prepared by the Committee, the requisite half-dozen or so has not yet been decided upon, chiefly because, in this branch of the Executive, it may be necessary to carry out the principle of class representation to the fullest extent. There is the manufacturing branch of the trade ; the wholesale, or distributing branch ; the retail, or dispensing branch; and the purely scientific, or analytical branch; each one of which may require a mouth-piece on the Committee. The promoters might have hurried through this delicate and important part of their duty, and have presented a seemingly perfect list of officers weeks ago, if they had desired to earn a short-lived praise for delusive promptitude and energy. As they are content, however, to move slowly and surely, and to do their work without show or glitter in such a way that it shall not require tinkering the first day after it is delivered, they have only perfected that part of the machinery required for immediate action. Temporary offices, at a very moderate rental, have been taken in the very heart of the City, and almost within speaking distance of the various wholesale houses; and the address of the New Society, until further notice, will stand thus :—

UNITED SOCIETY OF CHEMISTS AND DRUGGISTS.
No. 2, BELL YARD,
DOCTORS' COMMONS, LONDON, E.C.
CYRUS F. BUOTT, *Secretary.*

A centre of operations being thus established, the *business* of the Society will commence, at once, in good earnest. It is not necessary for us to recapitulate here the chief objects of the Association, because they are already "household words" in the mouths of its friends and supporters. Mr. Buott, the secretary, sends us the following

NOTICE.

To complete the registration of members, it is required that the outstanding annual subscriptions of five shillings—carrying from January 1*st*, 1861, *to January* 1*st*, 1862*—should be forwarded to the Secretary at the New Office, without delay, and this can be done either by postage stamps, order on any London House, or Post-Office Order.*

The two gentleman who have kindly consented to act as honorary treasurers are—

CHARLES LINDER, Esq., 104, Strand, W.C.
JONATHAN POTTER, Esq., 26, Dudley Grove, Harrow Road, W.

The Bankers of the United Society are THE LONDON JOINT STOCK BANK, PRINCES STREET, MANSION HOUSE, LONDON, E.C.

Post-Office Orders should be made payable to CYRUS F. BUOTT, at the General Post-Office, St. Martin's-le-Grand.

QUANTITATIVE ANALYSIS.

BY DR. HENRY M. NOAD, F.R.S.

ANALYSIS OF WATERS.

THE following are the substances which most frequently occur, and which have to be looked for and estimated :—I. BASES—The alkalies, *potassa* and *soda;* the alkaline earths, *lime* and *magnesia; oxide of iron.* II. ACIDS—*Sulphuric, hydrochloric, carbonic, nitric, silicic, hydrosulphuric.* Among the substances occurring occasionally, though comparatively rarely, we shall only consider two, viz. *iodine* and *bromine.*

1. *Determination of the total weight of solid matter.*—An imperial pint of the water is evaporated slowly to dryness, preferably in a weighed platinum dish, boiling and loss by spirting being carefully avoided. The residue is dried in a Taylor's air-bath (Fig. 1) at a temperature not exceeding 320° Fahrenheit, until the weight is constant. The experiment should be repeated, it being important that an absolutely correct result should be arrived at, as it serves as a check to the numbers obtained in the analysis.

2. *Determination of the organic matter.*—The residue, as obtained in (1) is heated at a low red heat until the blackening, which almost invariably occurs at first, has entirely disappeared; it is allowed to cool, and then drenched with a strong aqueous solution of carbonic acid, evaporated to dryness, and a second, and even a third time, drenched and evaporated, after which it is dried at 320° Fahrenheit in the air-bath, and weighed. The loss of weight gives a very close approximation to the quantity of organic matter in an imperial pint of the water. It should be noticed, whether during the ignition a smell like that of burning feathers is emitted; if so, it indicates that some, at least, of the organic matter is of animal origin.

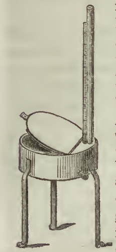
Fig. 1.

3. *Determination of the alkaline earths and (perhaps) iron dissolved in the water by carbonic acid.*—An imperial pint of the water is boiled for half-an-hour in a flask, distilled water being added from time to time, in order to keep the water of uniform bulk; should the water contain any soluble earthy carbonates, they will, in consequence of the expulsion of the carbonic acid which held them in solution, be precipitated mostly on the sides of the flask. The water is poured through a filter, and the flask rinsed once or twice with distilled water; no amount of rinsing will, however, generally speaking, remove the precipitated carbonates from the sides of the flask; they are therefore dissolved with dilute hydrochloric acid, and the solution poured upon the filter, the filtrate being received in a small beaker. The flask is rinsed till perfectly clean with repeated small effusions of warm distilled water, which are poured on the filter, and the latter washed until the wash water passes through tasteless. We have thus obtained two distinct filtrates: one from the boiled water (*a*), and the other from the solution of the precipitate on the filter, and from the deposit on the sides of the flask with hydrochloric acid (*b*); the latter represents the *iron, lime,* and *magnesia* dissolved in the water by carbonic acid. If the precipitate on the sides of the glass be quite white, the water contained no iron, but it does not therefore follow, that if it be not white, iron must be present; because the colour may be occasioned by organic matter. In such a case it is, however, necessary to examine the hydrochloric solution for iron, with which view it is boiled with a little nitric acid (to peroxidize any iron that may be present), and then supersaturated with *pure* ammonia in a flask or beaker, which can be closed with a glass plate or otherwise, the object of which is to prevent the ammonia from absorbing carbonic acid from the air, the effect of which would be to form carbonate of ammonia, which would precipitate a portion of the alkaline earths, on which *pure* ammonia has no action. With these precautions, any precipitate which pure ammonia occasions may be regarded as *sesquioxide of iron,* and may be collected, washed, dried, ignited, weighed, and estimated as such. The filtrate from the oxide of iron, or the entire solutions, should ammonia fail to produce any precipitate, contains lime and magnesia, which are separated and estimated as described in a former paper.* Waters which contain no earthy carbonates held in solution by carbonic acid, do not become turbid by boiling, pro-

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* Present Vol. p. 6.

vided the bulk of the water be kept up by the addition of distilled water. The filtrate from the boiled water (*a*) contains, of course, all the other constituents of the water, but the lime and magnesia are the only substances which need be determined.

4. *Estimation of the total amount of silica, lime, magnesia, and iron.*—A quantity of the water, from one to two pints, according to the quantity of solid matter present, is carefully evaporated to *perfect* dryness; the residue is digested with dilute hydrochloric acid, which re-dissolves everything but *silicic acid*, that substance having by thorough desiccation been rendered insoluble. It is collected on a filter, washed, dried, ignited, and weighed in a small *covered* platinum crucible. The hydrochloric solution, together with the washings from the silicic acid, is concentrated by evaporation, and the *iron*, *lime*, and *magnesia* determined in the ordinary manner. It is obvious that the lime and magnesia thus obtained should equal in quantity that obtained from the precipitate by boiling, and that in the filtrate from that precipitate.

5. *Determination of the alkalies.*—For this purpose two imperial pints of the water should be taken, and evaporated to about half a pint; *chloride of barium* is added, and then *baryta water*, until, after well stirring, a piece of reddened litmus paper is rendered distinctly blue. The precipitate is allowed to subside, and then filtered off; the excess of barium is removed from the filtrate by carbonate of ammonia, and after standing for an hour the precipitate is filtered off and well washed—the filtrate contains the alkalies in the form of chlorides, and chloride of ammonium. It is evaporated to dryness on the sand-bath at a moderate heat, in a platinum dish; when thoroughly dry, it is submitted to a low red heat, whereby the ammoniacal salt is expelled. The ignited residue, when cold, is re-dissolved in water, and a few drops of oxalate of ammonia added, which frequently occasions a cloudiness. The liquor should be warmed, and then filtered through a small filter; the filtrate and washings on being again evaporated to dryness, and gently ignited, leaves the alkaline chlorides *pure*. The potassium is separated from the sodium by the method described in a former paper.*

(*To be continued*).

THE NATURAL ORDERS OF PLANTS.

MALVACEÆ—THE MALLOW ORDER, OR MALLOWWORTS,

Is a member of the class Exogens; sub-class Thalamifloræ, and consists of herbaceous plants, shrubs, and trees, which abound in the tropics, and hotter parts of the temperate regions, but gradually diminish as the north is approached. Lindley states that they form an eighty-sixth part of the flowering plants in Sicily, a hundred and forty-fifth of those in France, a two-hundred and thirty-third of those in Sweden; while in Lapland they are unknown. In the temperate parts of North America they form a hundred and twenty-fifth part, and in the equinoctial parts of the same continent a forty-seventh; or, taking into account only the vegetation of the valleys, they, according to Humboldt, form a fiftieth of the flowering plants in the tropics, a two-hundredth in the temperate zone, and are not found at all in the frigid zone. Lindley, however, is of opinion "that some Sterculiads (an order nearly allied to the mallows) are included in these calculations." There are thirty-nine genera, and about a thousand species. The generic name, Malva, is thought by Withering to be derived from *μαλασσω*, to soften; in reference to its emollient and relaxing qualities. Gerard deduces it from the Chaldee name, *Malluach*, as growing among rubbish abounding in saltpetre.

BOTANICAL CHARACTERS.—The leaves are alternate, more or less divided in a palmate manner, and stipulate (having little leafy appendages at the base of their leaf-stalks). Hairs, when present, are stellate. The peduncles (flower-stalks) are usually axillary, and the flowers large and showy, often inclosed in an involucre of various forms. The sepals (divisions of the calyx) are five, very seldom three or four, more or less united at the base, with a valvate æstivation (the sepals, when inclosed in the flower bud, are in contact by their margins throughout their whole length, without any overlapping). Petals (divisions of the corolla, or inner whorl of floral envelopes) equal in number to the sepals, hypogynous (seated beneath the female organ), with a twisted æstivation, either distinct or adhering to the tube of the stamens. The stamens (male organs) are hypogynous, all perfect, monadelphous (united into one bundle or brotherhood by their filaments). The anthers (the cellular cases at the top of the filaments containing the pollen) are one-celled, reniform, bursting transversely. The ovary (that part of the female organ or pistil which contains the rudimentary seeds), formed by the union of several carpels round a common axis, either distinct or united. The styles (the part which connects the stigma and ovary), the same number as the carpels, either united or distinct. The stigmas (that part of the female organ that receives the pollen), variable. The fruit is either capsular, or baccate, its carpels being either one or many seeded: sometimes united into one, sometimes separate or separable into distinct cocci or follicles. Seeds sometimes hairy. Albumen, none, or fleshy, and in small quantities.

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* Vol. I. p. 336.

Diagnosis.—Professor Bentley thus describes them:—"Leaves alternate, simple, stipulate. Regular flowers. Calyx valvate in æstivation. Petals twisted in æstivation. Stamens hypogynous, numerous. Anthers one-celled, reniform, opening transversely; filaments united, so as to form a column. Carpels distinct or united. Seeds with very little or no albumen; embryo curved; cotyledons twisted." The order has been divided by Dr. Asa Gray into four tribes:—*Malopeæ*, *Malveæ*, *Ureneæ*, and *Hibisceæ*; but a more simple division, and that adopted in the Manuals of Professors Balfour and Bentley, is as follows:—

1. *Malveæ*—Flowers having an involucre; fruit consisting of separate carpels. Exs. Malva, Altheæ.

2. *Hibisceæ*—Flowers having an involucre; fruit formed by the union of several carpels. Exs. Hibiscus, Gossypium.

3. *Sideæ*—Flowers without an involucre; fruit consisting of separate carpels, or formed by the union of several carpels. Ex. Sida.

Distinction from Allied Orders.—It may be distinguished from *Byttneriaceæ*, the Chocolate order, and *Tiliaceæ*, the Lime or Linden order, by its anthers being one-celled, and the filaments perfectly united into a column; from *Sterculiaceæ*, the Silk Cotton order, by its one-celled anthers.

General Properties.—Freedom from all unwholesome properties and the presence of large quantities of mucilage are the prevailing features of the order. The bark of many species yield fibrous matter, and the hairs of the seeds of some species constitute cotton.

Principal Plants and Uses.

Abelmoschus.—The unripe fruit of the species *Esculentus*, termed Ochro, Gombo, Gobbo, Bandikai, &c., in the West Indies, is a favourite ingredient in soups, to which it imparts its mucilaginous qualities. The seeds of the species *Moschatus* are considered cordial and stomachic, and are employed by the Arabians to mix with coffee. In the West Indies these seeds, termed Gumbo musque, are powdered, steeped in rum, and regarded as a potent remedy against the bites of serpents.

Abutilon.—The flowers of the species *Esculentum*, Bençao de Deos, are boiled, and used in Brazil as a vegetable.

Althæa.—An article on the species *Officinalis*, will be found in our Botanical Calendar for August.* The species *Rosea*, the Hollyhock of our gardens, possesses properties of a similar character, and its flowers are officinal in Greece for the same purposes; a blue colouring matter, resembling indigo, is obtained from its leaves, and fibrous matter, which has been manufactured into good cordage, is procured from the bark.

Gossypium.—That valuable article of commerce Cotton, consists of the hairy covering of the seeds of several species of this genus. Professor Bentley says, "there appear to be three species especially from which our commercial cotton is obtained, viz.: 1. The species *Herbaceum* (or *Indicum*), which yields the common cotton of the East Indies. A variety of this furnishes the Chinese or Nankin Cotton, remarkable for its yellowish-brown colour; this colour was formerly thought to be artificial, and produced by dyeing, but it is now known to be natural to it. 2. The species *Barbadense*, yields all our best cotton. It is called in India Bourbon Cotton. From this the much esteemed Sea Island Cotton is obtained, as also the New Orleans, Georgian, and other cottons derived from the United States. 3. The species *Peruvianum* or *Acuminatum*, furnishes the South American varieties of cotton, as Pernambuco, Peruvian, Brazilian Cotton, &c. Another species, *Arboreum*, is the Tree Cotton of India, and yields a variety of a very fine, soft, and silky nature. This is used by the natives of India for making turbans. The seeds of the cotton plants, after the cotton has been obtained from them, upon being submitted to pressure, yield a fixed oil, which may be used for burning in lamps, and other purposes. The cake left after expression of the oil might be used for feeding cattle." In Brazil, the young leaves and the seeds of the species *Vitifolium* are said to be employed in dysentery, and when steeped in vinegar to be applied to the head in hemicrania.

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* Vol. I. p. 270.

HIBISCUS.—The species *Arboreus*, is a native of the West Indies, and is called Mohoe, or Mohaut; it is stated that the whips used in scourging the slaves in those islands were manufactured from the fibres of this plant. The species *Cannabinus*, is cultivated in India as a substitute for hemp, and is known under the title of Sunnee, or Brown Indian Hemp (it is sometimes improperly termed Sunn Hemp, but the latter is the produce of a Leguminous plant, "Crotalaria juncea"). The seeds yield a fixed oil. The petals of the species *Rosa-sinensis*, are astringent, and are said to be employed by the Chinese to blacken their eyebrows, and the leather of their shoes. Various other species, as *Striatus*, *Tileaceus*, &c., yield serviceable fibres; whilst a few species, as *Sabdariffa*, and *Suratensis*, &c., are slightly acid.

MALACHRA.—The leaves of the species *Capitata*, are said to be anthelmintic, and to be used for that purpose in Panama.

MALVA.—The petals of the species *Alcea* are astringent, and a black dye is said to be procured from them; the species *Crispa* yields fibre capable of being manufactured into cordage, and the species *Sylvestris*, or Common Mallow, possesses properties similar to those of Althæa officinalis, the Marshmallow.

PAVONIA.—The species *Diuretica*, is so named from its supposed diuretic property, and is employed in Brazil for that purpose.

SIDA.—The species *Abutila* is said to be cultivated in China as a substitute for hemp. The species *Cordifolia* is stated to be employed, mixed with rice, to alleviate the bloody flux. The root of the species *Lanceolata* is intensely bitter, and is esteemed a valuable stomachic. The species *Mauritiana* is said to be employed by the Hindoo doctors in the preparation of emollient fermentations. The species *Micrantha* yields fibre for the manufacture of cordage, and its light straight stems are employed for rocket-sticks.

SPHÆRALCEA.—The chewed leaves of the species *Carpinifolia* are used in Brazil as an application to the punctures of wasps; and a decoction of the species *Cisplatina* is given in inflammation of the bowels, and employed for the same purposes as the Marshmallow in Europe.

URENA.—A decoction of the root and stem of the species *Lobata*, is used in Brazil to alleviate windy cholic, and the flowers are employed as an expectorant in dry and inveterate coughs.

The large and showy flowers of many plants of the order contribute to the adornment of our gardens as the well-known and favourite Hollyhock (*Althæa-rosea*), together with different species of Abutilon, Hibiscus, Sida, &c. The *Hibiscus mutabilis* possesses the curious property of changing the colour of its flowers, hence its specific name; they are said to vary from a cream coloured rose, to a rich rose or pink colour in a single day.

TOXICODENDRINE.

HISTORY.—Toxicodendrine is the alkaloid or active principle of the *Rhus Toxicodendron*. The varieties of this plant are known for their astringent and gummy-resinous, and some for their acrid and poisonous qualities. To Dr. Alderton, a celebrated Hull physician, is ascribed the prosecution of a full investigation of the species under notice, and his labours and experiments led to its recognition in the London Pharmacopœia of 1836.

PROPERTIES.—This preparation is a white crystalline substance. In its action it is an irritant and a stimulant, and has an effect on the muscular system similar to that of strychnine. It has been administered with very great success in cases of paralysis. Its action soon commences, and is attended by a pricking and twitching of the affected limb. As is well known, the Rhus of the Homœopaths is a favourite remedy in their practice.

DOSE.—The dose of Toxicodendrine is from one-eighth to a grain. The best form for administering it is in solution, as it is then more widely diffused.

The expressed juice of the Rhus is prepared by many practitioners, but we do not think it so efficacious as the Toxicodendrine.

CHEMICAL NOTES.

A hitherto unobserved source of Paraffin.—Professor Bolley communicates the following result of one of a series of researches at present being made in the Technical Laboratory of the Swiss Polytechnic School, on certain kinds of coal used for the production of illuminating gas, which will be read with interest at the present time, when the subject of paraffin and the photogenic oils is receiving so much *costly* attention. A kilogramme of pulverized Boghead cannel coal yielded to alcohol 2·14 parts of solid extract residue, and to ether, after drying, 2·63 parts. The etherial extract was unctuous to the touch, and not very deeply coloured: it could be re-dissolved in ether, and decolorized by agitation with animal charcoal. It sustained a slight loss by boiling with soda-lye, and the undissolved portion melted at 41° cent.; remained colourless when heated; solidified in crystalline laminæ; was insoluble in water; sparingly soluble in alcohol; somewhat more so in ether. The analysis of this residue gave,—

Carbon, 86·33; hydrogen, 13·32; = 99·65.

Now, the melting point of paraffin was found by Reichenbach to be 43° cent.; but different samples exhibit slight variations in this particular, so that Bolley entertains no doubt that the substance in question was really *paraffin*; and he expresses the opinion that this substance exists *ready formed* in several of the materials—from the distillation-products of which, it has hitherto been prepared—such as peat, shale, lignite, &c. From coals he could obtain by ether no paraffin, but extracts more of the nature of asphalte; and he ventures the suggestion that the non-existence, or the rarity of occurrence of paraffin in coal tar, is *not* attributable to the great heat employed in the distillation, but to the fact that true coal does not contain paraffin ready formed, and therefore cannot yield a tar containing it. The writer is about to institute a series of experiments on the different varieties of Welsh coal, with the view of testing Professor Bolley's theory, which if sound, will, he ventures to think, go some way towards settling the bitterly disputed question, "What is coal?"

The Electrolytic Test for Arsenic.—Professor Bloxam is engaged in an investigation having for its object the perfection of a method for detecting the poisonous metals by the decomposing action of the galvanic current. When a solution containing *arsenious acid* is mixed with diluted sulphuric acid, and subjected to the action of the voltaic current, arseniuretted hydrogen is evolved at the negative terminal, and in this way very minute quantities of arsenious acid can be detected with great certainty, even in the presence of large quantities of organic matter, and without adding any material to the liquid which would interfere with its examination by other analytical processes. *Arsenic acid* does not respond to this test, and the presence of *mercury* interferes materially with the detection of the arsenic. The experiment is made in a U-shaped tube, one limb of which is closed with a perforated cork, through which passes a tube for the escape of the hydrogen, and a strip of platinum foil connected with the zinc extremity of a Grove's battery of 5 cells; to this wire is attached a platinum plate, measuring about two inches by three quarters of an inch, which is thrust down almost to the bottom of the U-tube: the other limb of this tube is left open for the escape of oxygen, and contains a similar platinum plate connected with the platinum extremity of the battery. At the commencement of each experiment the U-tube is charged with a fluid ounce of diluted sulphuric acid, and the solution to be examined then introduced. As soon as the closed limb is filled with hydrogen, the drawn out tube is heated, when the appearance of the well known metallic mirror indicates the presence of arsenic. With *arsenic acid* no arseniuretted hydrogen is evolved, but the introduction of a few drops of solution of hydrosulphuric acid into the electrolytic cell causes its instant evolution. If *antimony* be present, it is precipitated as sulphide by the hydrosulphuric acid, and does not become reduced, as is proved by the immediate solubility of the metallic crust in solution of chloride of lime. In this way 0·01 grains of arsenious acid, mixed with 1 grain of tartar emetic, could be easily separated and identified, even when mixed with considerable quantities of food. *Mercury* also, if present, is removed by hydrosulphuric acid, and no longer interferes with the detection of arsenic;—thus, the author mixed 0·25 grain of corrosive sublimate and 0·0025 grain of arsenious acid with white of egg, bread, milk, beer, &c., and found no difficulty whatever in the detection of the arsenic. A solution containing corrosive sublimate and *arsenic acid* may be electrolyzed for half an hour without the slightest appearance of arsenical deposit in the heated tube, the mercury being deposited abundantly upon the negative plate, but on the addition of solution of hydrosulphuric acid, a crust of metallic arsenic is soon obtained. A very grave subject for the consideration of toxicologists is the very great difficulty of obtaining the re-agents which he requires in his investigations, perfectly free from arsenic. By the method above described, Bloxham has detected this poisonous metal in sulphuric and hydrochloric acids, supposed to be pure; and also in various samples of solution of potassa and of the solid hydrate. The production of sulphuric acid absolutely free from arsenic is now engaging his attention.

Fremy's researches on the Composition of Cast-iron and Steel.—It had been shown by Despretz that at a red heat iron decomposes ammonia, becomes white and brittle, and increases in weight 11·5 per cent. Fremy proves that this increase in weight is due to the absorption of *nitrogen*, that a true nitride of iron is formed, quite free from hydrogen. Iron can only be made to combine directly with nitrogen with extreme difficulty, but a nitride is formed when nitrogen is brought into contact with the metal at the moment of its reduction, either by hydrogen or carbon. The action of ammonia on iron is extremely slow, whole days being required to convert a few grains into nitride; but by passing ammoniacal gas through a porcelain tube containing protochloride of iron heated to redness, Fremy obtained nitride of iron in abundance. He exhibited to the Academy of Sciences, on the 25th of February, a mass weighing 200 grammes, white and brilliant, and he expressed an opinion, that as this compound can now be so easily made, it will become a valuable agent for furnishing nitrogen to mineral and organic substances. Nitride of iron is easily pulverized; is less oxidizable than pure iron; is attacked with difficulty by nitric acid, but with great energy by hydrochloric and sulphuric acids; and is susceptible of permanent, but less powerful, magnetism than steel. It is a compound of great stability; supports a red heat without decomposition, and only attacked by oxygen at a high temperature. Its composition appears to be $Fe_5 N$, which corresponds to 9·5 per cent. of nitrogen. When heated in a charcoal crucible it undergoes a remarkable change, approaching the condition of steel, and when heated in a current of hydrogen, it does not give off a trace of ammonia.

In a later communication to the Academy of Science (11th of March), Fremy describes some exceedingly interesting experiments: he finds that when iron is submitted at a red heat to the action of coal-gas it becomes regularly carbonized, forming grey, graphity malleable cast iron, equal in quality to the finest charcoal iron; but under no circumstance, however carefully he regulated the dose of carbon, could he form in this way *steel*, but when the compound of iron and nitrogen, obtained by passing ammonia over red hot iron, was submitted to the action of coal-gas, steel of a splendid grain was produced, a specimen of which Fremy exhibited to the Academy. He has come therefore to the conclusion that steel is not, as is generally supposed, a simple compound of iron and carbon, but a nitro-carbide of iron (fer. azoto-carbure). Fremy is still engaged in these researches which promise to yield results of great practical value.

Professor Faraday on Platinum,—A discourse on the recent investigations of Deville and Debray was delivered to the members of the Royal Institution, on Friday, February 22nd, by Mr. Faraday. Platinum almost invariably occurs accompanied by five other remarkable metals. The whole six forming two groups of three each; each group having an equivalent number very different from that of the other group, and also a very different specific gravity, as appears in the following table:—

Group I. Equiv. number 95·5.			Group II. Equiv. number 53.		
1. Osmium	Sp. gr.	21·4	2. Ruthenium	Sp. gr.	11·3
3. Iridium	„	21·15	4. Rhodium	„	12·1
5. Platinum	„	21·15	6. Palladium	„	11·8

The three in the first group have the same equivalent number, and nearly the same specific gravity; but osmium takes the place of platinum as the heaviest of bodies. The equivalent number of the second group is alike for all, but it is little more than half that of the former group. The specific gravity of the group also is little more than half that of the former group. The platinum has usually been extracted from these ores, by the action of aqua regia, from the solution in which the platinum is precipitated by chloride of ammonium, and the double salt thus obtained, decomposed by heat, which yields the platinum in a spongy form, and this when pressed, heated, and hammered, furnishes massive platinum. Deville employs an entirely different method: he mixes the ore with its own weight of galena, and half its weight of metallic lead, and then heats the mixture; in this way he obtains a platiniferous lead, from which as much as possible of the lead is expelled in the form of litharge, by heating it while exposed to the air. The alloy of lead and platinum now contains not more than 10, or even 5 per cent. of lead, and requires a very high temperature to fuse it. It is fused in furnaces constructed of chalk-lime, heated by the insertion of oxy-gas blow-pipes. The heat first melts the alloy, and being combined with oxygen in a little excess, the remaining lead is rapidly oxidized, and dissipated in fumes, and then being raised and continued, any gold, copper, osmium, or other metals, except iridium or rhodium, are also converted into vapour and driven off. The platinum remaining is at last heated to a still higher degree, and is either cast into flat cakes or granulated, and this has been done with quantities weighing as much as 40 lbs., the iridium and rhodium still remaining with the platinum, increases its hardness and renders it less liable to chemical action. Henry M. Noad.

ACONITIA AND ITS SUBSTITUTES.

BY WILLIAM PROCTER, JUNR.*

The high price and variable quality of aconitia has rendered its use as a medicinal agent so expensive and uncertain, that many physicians never employ it, depending upon the stronger tinctures of the root, in cases requiring the external use of aconite. In the manufacture of organic chemical products, very much is added to their cost by the complications and loss rendered necessary or unavoidable in their purification from colouring matter, or strongly adherent resinous or other inert substances in minute quantity, which, whilst their presence impairs the market value of the chemicals, often do not greatly reduce their medicinal power. In asking the attention of pharmaceutists to the following modifications of Headland's process for aconitia, it is with the view of furnishing them with a practicable means of supplying their own wants in regard to this potent alkaloid.

It is proper to premise that aconite root contains a green fixed oil, solid below 70° Fahr., which it is important to remove entirely from the solution before attempting to extract the alkaloid, by the agency of ether, a precaution only partially carried out in the published process of Dr. Headland. When a tincture of aconite root in alcohol of sp. gr. ·835, whether prepared in the cold by percolation, or by digestion at the temperature of boiling alcohol, as recommended by Headland, is evaporated to one half the weight of the root treated, a quantity of the green fatty oil above noticed separates and floats upon the surface of the liquid. Most of this may be strained out, if the temperature is below 70° Fahr., but a portion, together with some resin, remains intimately combined in the clear liquid, and it is this which is not removed previously to adding the ammonia, in the process of Headland. Further, aconitic acid is soluble in ether, and aconitate of ammonia may be slightly so, in which case it also would tend to contaminate the aconitia in that process.

Take of Aconite root, in fine powder, five pounds.
Alcohol, ·835.
Ether.
Stronger solution of ammonia, each a sufficient quantity.

Moisten the aconite root with two pints of alcohol, and let it stand twenty-four hours in a covered vessel, then, having packed it closely in a cylindrical percolator, pour on alcohol until three gallons have slowly passed, or until the root is so far exhausted that the passing liquid has little, if any taste of aconite. To the tincture thus formed add an ounce of lime, previously hydrated and in powder, and agitate them together; separate the precipitate which forms by straining through a close cloth, and saturate the liquid with diluted sulphuric acid till slightly acid. Filter the liquid through a close filter and distil off the alcohol, until the remaining liquid measures about a pint and a half. Remove any fixed oil which may separate on standing, and having continued the evaporation to a syrupy consistence, agitate it well with four fluid liquid ounces of ether in a suitable bottle, and decant the ether when it has separated. Then add the solution of ammonia in excess, agitate thoroughly, wash the mixture with repeated portions of ether, by agitation and decantation, and having mixed these last etherial liquids, allow the ether to evaporate spontaneously from a capsule, until the aconitia remains as a dry amorphous shining residue, which should be removed from the capsule, powdered, and preserved for use in a stopped vial.

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* Extracted from the *American Journal of Pharmacy*.

As thus obtained, aconitia is a powder of greenish or brownish-white colour, uncrystallized, very soluble in alcohol, ether, and chloroform, saturates acids, and has a strong alkaline reaction. It irritates the nose powerfully when a minute particle is inhaled, but does not excite sneezing.

Modes of using Aconitia.—When aconitia is to be employed in the form of an ointment, its activity may be much increased by adding to it a sufficiency of acetic acid to salify it, which renders it more readily absorbable in contact with the skin. The powder should first be triturated with a few drops of alcohol, and the acid added to this in the proportion of a drop of acetic acid to each grain of the alkaloid.

Glycerole.—When aconitia is mixed with a slight excess of acetic acid it readily dissolves in glycerin, and in this state may be applied by friction to the surface requiring its anæsthetic action. The proportion of the alkaloid to each preparation must be regulated by the prescriber; two or three grains to the drachm of prepared lard is a maximum strength for the ointment, and from this down to one grain.

SUBSTITUTES FOR ACONITIA.

Tinctura Aconiti Radicis, U. S. P.—This preparation is of such strength, that two pints of the tincture is intended to represent twelve ounces troy of aconite root. Owing to the hard and resistant structure of this root, and from the annoyance arising from the dust in effecting its pulverization, I believe this tincture to be, oftentimes, an imperfect representative of the amount of aconite used. It is suggested to those who have not a suitable mill for grinding this root, that it may be exhausted by bruising it well in a metallic mortar, with the addition of just sufficient alcohol to prevent dust arising, until fine enough for percolation. Then having added sufficient alcohol to completely saturate the powder, let it stand two days, and pack it firmly in a percolater. Pour on alcohol (which should pass slowly) until the root is nearly exhausted (about three pints for each pound troy of the root). Then evaporate the tincture in a water bath to two pints, and filter. This plan ensures the exhaustion of the root if due care is taken. When the aconite root can be obtained in fine powder, as through a sieve 60 meshes to the inch, it is best to proceed by direct percolation, after moistening the powder with a fourth of its weight of alcohol.

Fleming's Tincture of Aconite Root should be made with the same precaution; and in this case it is even more necessary, as the proportion of root to tincture is larger.

Aconite Liniment is the name given to a concentrated solution of aconite, with a portion of glycerin, originally prepared by the writer of this paper. An experience of eight years with this preparation warrants the opinion that it is strongly deserving of the attention of the medical profession. A fluid ounce of this preparation represents two ounces of the root; it is therefore about five times the strength of the Officinal Tincture, and about three times that of Fleming's Tincture. I have for years past adopted the custom of keeping a normal solution of aconite root, obtained by thorougbly exhausting the drug with alcohol, and evaporating the tincture until each fluid ounce represents two ounces of the root, removing the fixed oil that separates, and if necessary agitating it with a little diluted alcohol, to remove any adherent aconitia and extractive matter. From this the weaker preparations are made by dilution, and the stronger by evaporation, thus:—

Tinctura Aconiti Radicis. U. S. P.—Take of normal solution of aconite, three fluid ounces; alcohol, twelve fluid ounces. Mix them.

Fleming's Tincture of Aconite Root.—Take of normal solution of aconite, five fluid ounces; alcohol, ten fluid ounces. Mix them.

Aconite Liniment.—Take of normal solution of aconite, half a pint; glycerin, a fluid ounce. Evaporate the solution to seven fluid ounces, add the glycerin, and mix them.

Aconite Plaster.—Take of normal solution of aconite root, half a pint; adhesive plaster, a sufficient quantity. Evaporate the solution of aconite until it assumes the consistence of thick honey, then, having weighed it, add as much adhesive plaster, previously melted, as will make the whole weigh sixteen ounces.

Extractum Aconiti Radicis.—Take of normal solution of aconite, half a pint. Evaporate it carefully on a water bath until reduced to the proper consistence for an extract.

In regard to the merit of this mode of proceeding, it can be said that it assures the thorough extraction of the aconite, and promotes uniformity in the strength of the preparations, and also affords a very great convenience to the dispenser, who can, by preparing a quantity of the strong solution, quickly produce the other preparations at will, in quantities to suit his requirements.

THE TORBANEHILL MINERAL AGAIN.*

There is hardly a substance in the whole of the mineral kingdom which has given rise to more virulent discussion as to its true nature, than the Torbanehill mineral, or Boghead coal, as it is sometimes called. These two names almost tell the story of the dispute; one set of naturalists looking on it as a mineral *sui generis*, the other regarding it as a true coal in the mineralogical, geological, and chemical acceptation of the term.

On this disputed point thousands of pounds have been already spent, and many more seem likely to go into the pockets of the lawyers on account of it. If ever it is determined *not* to be a coal, but a distinct mineral, we beg to suggest most humbly that it be called *law-stone* or *legalite*, from the magnitude of the litigations which have arisen from its doubtful nature.

A lawsuit will shortly take place in Edinburgh once more to examine into its nature and decide upon its position in the mineral kingdom. In order that our readers may be able to follow the arguments that will be adduced during this very interesting trial, we intend giving a short history of the mineral—legal, mineralogical, and chemical. Its first appearance in the dock was at the Edinburgh Court of Session, in August, 1853, in the action Gillespie *v.* Russel, when it was decided to be a coal. Its next appearance will take place in a few weeks again in Edinburgh, in a trial which will be scarcely second in importance to the above.

It will be in the recollection of many of our readers that a few months ago Mr. Young, of the Paraffine Light Company, asserted his right under his patent to all processes for the distillation of the so-called Paraffine oil from coal at a low temperature, in one of the Scotch courts of law. It was then decided that while the process of extracting this valuable material from coal belonged to him alone, it was equally allowable for other patentees to use peat, shale, &c., for the purpose, according to the terms of their respective patents.

It appears that Mr. Young has found that the Torbanehill mineral is one of the cheapest and best sources of Paraffine oil, and being a very large consumer, is enabled to exert a considerable influence on the market. Mr. Gillespie, being the owner of the best and largest mines, has challenged Mr. Young in an action to prove that the mineral is a coal, and that he alone has the right to use it under his patent. Although Mr. Gillespie was beaten in the former action of Gillespie *v.* Russel, he still asserts that the mineral is not a coal, and bases his assertion on the opinion of many English and continental chemists of eminence. One great point in his favour is, that the mineral is allowed to enter the Zollverein and France under the class of bituminous shales, and as such pays no duty.

We do not intend to prejudge the case in any way, but rather wish to give our readers the arguments that have been brought forward on both sides, that they may more easily follow the evidence when the trial comes on. This will best be done by giving a sketch of the mineral itself, following it by a short *resumé* of the evidence given *pro* and *con* in the famous trial alluded to above.

The Torbanehill mineral is found in the coal measures of the lands of Torbanehill, in the parish of Bathgate, in the county of Linlithgow, where it forms a bed varying from sixteen inches to two feet in thickness, and extending to Bathvale and Benbachlaw, where it becomes coarser, darker, and less valuable. In geological position it seems to be similar to the various cannel coals. In working it is taken from the beds in rhomboidal blocks, extending through the whole thickness of the seam. The fracture, perpendicular to the plane of stratification, is conchoidal, and that parallel to the same is slaty. Its colour varies from a light brown in the upper part of the seam to a dark and lustrous brown in the lower.

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* Extracted from the *Ironmonger and Metal Trades' Advertiser.*

When viewed chemically it exhibits some peculiarities. The quantity of earthy matter it contains is large—18 per cent. The fixed carbon is small in quantity—65 per cent., but the proportion of hydrogen is large—8 per cent. When distilled it yields a variety of products similar to those obtained from coal, such as gas for illumination, tar, ammoniacal liquor, benzole, naphtha, naphthaline, pitch oil, paraffine oil, and paraffine. In the *Chemical News* for March 2nd, 1861, it is stated to be plastic when heated considerably below the point necessary for the elimination of gaseous or volatile products, but the fact is not vouched for. The same authority states that the naphtha produced by distillation at a high temperature is very different in density and chemical character to coal naphtha, and is remarkable for containing 30 per cent. of hydro-carbons identical with the radicals of the alcohols. These two facts help still more to separate it from true coal, although many of its other characteristics are common to it and most coals. It is remarkable for the large amount of paraffine oil and gas that may be obtained from it. It yields 15,000 cubic feet per ton of the latter product, while the best coal gives but 12,000 cubic feet for the same quantity.

In every part of it fossil plants are found, principally belonging to the Stigmaria; but Professor Quekett observes, "these have no more to do with the formation of the mineral than has a fossil bone in that of a rock in which it is imbedded." The fractures which are found to permeate the beds of the mineral are not natural places of cleavage, but simply the effect of shrinkage; a similar appearance being presented by the mud at the bottom of a dry clay pool. When wetted it gives out a peculiar clayey odour, and when heated the smell is very bituminous. When burnt it emits a quantity of black smoke, covering the room with smuts. It gives out but little heat, and is therefore utterly useless for household or furnace purposes. If burnt in a closed vessel, a black mass is left behind, closely resembling animal charcoal, instead of coke, while if burnt in the open air a white pulverulent substance remains behind, similar in composition to china clay, consisting principally of sub-silicate of alumina. As already stated, continental chemists have come to the conclusion that it is a bituminous mineral, with an argillaceous basis. As this decision is against the interests of their respective countries, inasmuch as it allows the mineral to be imported duty free, we may reasonably suppose it to be an honest one. The circumstances leading to this decision are as follows. In Frankfort-on-the-Maine there exist two rival gas companies, one of which has a patent for distilling gas from coal, and coal only, and the other for distilling it from resin, oil, wood, peat, or any other substance, except coal. M. Engelhardt, the manager of the latter company, hearing of the gas producing qualities of the Torbanehill mineral, introduced it into Frankfort through Rotterdam. It was, however, entered as *cannel coal* at the Dutch custom-house, much to M. Engelhardt's annoyance, as not only was it liable to duty, but he was debarred from using it for gas-making. The officials were puzzled, and referred to their chiefs, who were still more puzzled, and referred to the Central Board of Customs at Berlin, who act as a court of appeal in such cases for the Zollverein. They described it as a clayey mineral, containing bitumen. So much for its properties.

The trial of Gillespie *v.* Russel is one of the most extraordinary of our scientific *causes celébres*, both from the magnitude of the interests involved and for the marvellous diversity of opinion shown by scientific men of acknowledged repute, during its progress. It took place at Edinburgh, before the Lord President of the Court of Session, in August, 1853, and lasted six days. Seventy-eight witnesses were examined—thirty-three for the pursuer, and forty-five for the defender—Anglicè, plaintiff and defendant.

Perhaps there never was such a congregation of first-rate scientific men in a court of justice before. There were FF.R.S., R.G.S., G.S., C.S., H.S., and half-a-dozen other SS. A few names of the witnesses will give an idea of this wonderful display of scientific talent: Ansted, Anderson, Brande, Hugh Miller, G. Wilson, Quekett, Bowerbank, Graham, Stenhouse, Jukes, Hoffman, Fyfe, Gregory, Balfour, Redfern—chemists, mineralogists, botanists, geologists, miners, and engineers. The scientific pudding was, however, somewhat too rich, and disagreed with the judge, who thought proper to insult two eminent men present in his summing up; with the counsel, who insulted the microscopists; and with the jury, who rejected all the scientific evidence, and gave a verdict deciding that the mineral was coal because it was called coal. Truly a sapient decision.

The question to be tried was, whether the defendants had violated the terms of their agreement for a lease by extracting the mineral from mines formed in the lands of Torbanehill, and let to them by the plaintiffs. The damages were laid at 10,000*l.*, and the legal expenses on both sides must have fallen little short of that sum.

At Candlemas, 1850, Mr. Gillespie, the owner of the Torbanehill property, let to the Messrs. Russel and Son certain lands, supposed to contain valuable workings of ironstone and coal, and entered into an agreement, by which the Messrs. Russel were to be allowed to extract the whole of the *coal*, ironstone, iron ore, limestone, and fireclay, but not *copper*, or *any other mineral whatsoever*, except those specified.

The agreement further provided that the lessees should hold the land at a nominal rent for the first year, during which time they were to sink shafts, and make borings, in order to test the mineralogical value of the estate. If it was found unprofitable it was to be abandoned, provided the trials made were to the satisfaction of Mr. John Geddes, an eminent mining engineer, of Edinburgh. The land proved profitable, and the Russels continued working it, and paying rent according to their agreement, including a lordship on certain of the mineral products found. In 1852 Gillespie suspected that they were working a mineral not comprehended in the agreement, namely, the Torbanehill mineral, or Boghead coal. He made inquiries to ascertain whether his suspicions were well founded, and finding that they were, he called on the Messrs. Russel to cease working a mineral not included in their agreement. The reply was that the mineral was a coal, and well known as such in the market, the result of which discussion was the commencement of the present action.

On the part of the plaintiff, Professor Ansted gave evidence of having found fossils *in* the mineral, fossils being only found at the top and bottom of the bed in the case of coal. Its proportion of *fixed* carbon was only 6 per cent., Methil cannel containing 36 per cent., and other coals 40 to 90 per cent. It retains its shape while burning, while cannel coal cakes. When wetted it has an odour like wet clay, the inference being that its base was clayey, and not carbonaceous like coal, the main difference between it and cannel coal being its amount of fixed carbon. Considered 40 per cent. the minimum of fixed carbon for coal. When of no value as a coal a mineral would cease to be a coal. The floor of the bed where the Torbanehill mineral was found is dissimilar to a coal bed.

Professor Brande gave the analyses of the mineral, Newcastle coal, Lesmahagow cannel, and Torbanehill coal proper—

	Fixed Carbon.	Volatile Matter.	Ash.
Newcastle coal	77	21	2
Lesmahagow cannel	41	56	3
Torbanehill *coal*	55	40	5
Torbanehill mineral	10	70	20

Digested in naphtha, coal gave a brown liquid containing bitumen, whilst the naphtha in which the mineral was digested merely browned slightly. As a chemist he would pronounce it not to be a coal from the small quantity of fixed carbon and the large quantity of hydrogen contained in it. The large quantity of earthy matter, and the sooty character of the residue, proves it not to be a coal, its capability of producing large amounts of gas being no proof to the contrary, as resin, oil, and bitumen will produce it also.

Professor Anderson testified to its mineralogical characteristics being different to those of coal, the surface of coal being brilliant, and that of the mineral dull. The property of coking during distillation was a distinctive character of coal. He did not consider anthracite to be a coal. When coals split sideways they split vertically as well, but the vertical splits in the mineral must be looked upon as the effect of shrinkage. He did not consider it a coal, but a bituminous mineral with a clay base.

Hugh Miller confirmed Professor Ansted in his geological evidence, and considered it to be a very inflammable shale, something like a piece of spongy slate dipped into oil and tar. When burnt in a fire it did not yield cinders like coal, but what Scotch housewives called "ghaists." He acknowledged that there was a great laxity about the geological definition of coal.

Professor Quekett gave evidence as to the microscopic character of the mineral. He stated that he had found it to be structureless, while coal was composed of woody fibre. Mr. Bowerbank and Dr. Adams confirmed Professor Quekett's evidence as to its possessing no structure, adding that the vegetable tissues found in it were accidental.

Adam Harper and some others, miners, gave evidence as to coal "sounding like a drum" when struck, while the mineral sounded deader, "more like timber." They further stated that in working it, it gave out a smell like "corruption," which affected their eyes and heads, sometimes making them vomit. Nothing of the sort occurred in working coal.—James Dunmuir had used the ash to whitewash his house with. He found the dust of the mineral affect his eyes.—John Anderson, coal manager at Pollock, considered it to be "blaze," or shale, and not coal.—Mr. Walker, manager of the Kilmarnock gas works, did not consider it a coal, from its leaving no coke in the retort. They always cast the ash into the river as useless. He bought it as a coal from Messrs. Russel, because they called it a coal, but he never heard of a coal not yielding coke.—Mr. McLintock, asphalte, naphtha, and manure manufacturer, at Glasgow, found it gave 26 gallons of paraffine oil, 12½ gallons of naphtha, and 11½ of tar and water to the ton. He never had found any coal producing so large a quantity of these materials, therefore he thought it could not be a coal.

Some purely legal evidence was then given, and the defendants' case commenced. Professor Graham stated that the average proportion of ash was 22 per cent . but that it bore by no means a fixed proportion to the other constituents. By closely imitating the process of obtaining gas at gasworks he succeeded in getting a true coke. This was by exposing the mineral to heat in a closed vessel for five hours, which he considered a very long time. He considered the coke very inferior in quality, but containing at least 47 per cent of carbonaceous matter. The mineral does not contain bitumen. He decidedly thought it was a coal containing an overplus of hydrogen. Hence the inferiority of the coke, the hydrogen carrying off a great quantity of carbon in a volatile form. Another reason for the coke being so poor was, that it contained so large a proportion of earthy matter. When pressed with the question, "Will the coke of this mineral burn ?" he replied, "I think it will, but I do not know." He did not consider the large proportion of ash inconsistent with its character as coal, but at the same time he never saw a coal which yielded so large a quantity of ash.

Dr. Stenhouse gave evidence as to its being a mineral containing a great quantity of coaly matter. He had burnt it, and found the ash differing but little from that of ordinary coal. He thought that the mineral differed but slightly from ordinary cannel coal.

Professor Jukes, the Director of the Irish Geological Survey, considered it to be a coal on geological grounds.

Proffessor Hoffman thought it must be properly classed with coal, from the predominance of carbonaceous matter in it, from the ash being similar to that of coal, and from its burning like coal.

Dr. Fyfe testified to its containing the usual ingredients of gas coal. When Lesmahagow cannel coal was distilled, precisely the same products were obtained. As a chemist, he considered that Boghead coal was as much a coal as the Capeldrae, Lesmahagow, or Methil cannels.

Dr. Gregory thought it was a coal with a tendency to a slaty structure, and differed from a shale on account of the conchoidal fracture and larger proportion of carbonaceous matter.

Professor Balfour found great quantities of cellular tissue in the mineral. In fact, the amorphous part of it was by far the lesser of the two. He could discern microscopically the same structure in Methil, Lesmahago, and Capeldrae cannel coals.

Dr. Redfern considered the yellow spots occurring in the mineral to be vegetable cells. For these, and for many other reasons, he considered the mineral to be coal.

Dr. Greville gave evidence as to the cellular structure being general through the mass of the mineral, and thought the mineral was as much a cannel coal as the Lesmahagow or Capeldrae.

Professor Harkness gave evidence as to its being found in the exact geological position in which coal was found. Did not think it was a shale, from the great quantity of combustible matter contrined in it, and from the want of slaty structure.

Dr. Maclagan stated that shales and coals ran into each other. He considered carbon to be the base of the mineral. Woody fibre, scalariform tissue, and cellular tissue, were all found in the mineral, as well as in coal. The market price of the mineral was 15*s*. per ton, while that coal was only 6*s*. 1½*d*.

Several other witnesses were examined—miners, engineers, gas managers, &c., who, like the chemists and geologists, gave evidence diametrically opposed to that of witnesses of the same class examined on the plaintiff's behalf.

The Lord President summed up by directing the jury to say whether the substance fell within the term "whole coal" in the agreement to Russel and Son. The geologists differed greatly on the point—four having said it was not coal, whilst five said that it was. The chemists and microscopists also differed—five considered it coal, and ten giving their opinion the other way. They therefore must find whether it was a coal or not, not on the scientific question, but according to the meaning of those who dealt in coal.

The jury returned a verdict for the defendants, pronouncing it to be coal. Thus ended this famous trial. We have confessedly given but a bare account of it, and our readers will easily understand why, when we tell them that the original report is contained in 280 quarto pages, closely printed. We expect to receive some authentic information as to the points to be raised during the approaching trial, and will lay it before our readers next month.

THE NEW DYES OBTAINED FROM COAL TAR.—I.

BY EMERSON J. REYNOLDS.*

I intend, in the following papers, to give a general view of the production of purple and red dyes from coal tar, a subject about which very little is generally known at present. My object in doing so is not to bring forward an original treatise, but to give a condensed history of their manufacture, detailing processes which have given the best results in my own hands, and likewise explaining the theories involved in the different operations.

When coal is subjected to destructive distillation in the retorts used in the manufacture of gas, it is decomposed with production of a great variety of substances. One of these is the well-known liquid tar; it is with this that we have principally to deal at present. Next to gas, tar is the most important product from coal, now yielding large revenues to the gas companies, although formerly it was a source of great annoyance, trouble, and expense to be got rid of. The tar which is procured from the Boghead or cannel coal is found to yield a naphtha superior to any other for industrial purposes.

Very few people have any idea of the number and variety of the compounds which this interesting substance is capable of furnishing on distillation and rectification; so, in order to show this more clearly, I have drawn up this table :—

SOLIDS.	LIQUIDS.			GASEOUS.
	Acids.	Neutral.	Bases.	
Carbon.	Rosolic.	Water.	Ammonia.	Hydrogen.
Paraffine.	Brunolic.	Light Oil.	Methylamine.	Light and heavy
Naphthaline.	Phenic, or	Heavy do.	Ethylamine.	Carburetted hydrogen.
Anthraceine.	Carbolic.	Benzole.	Lutidine	Carbonic oxide.
Pyrene.	Acetic.	Cumole.	Aniline.	Sulphide of carbon.
Chrysene.	Butyric.	Cymole.	Quinoline.	Carbonic acid.
		Toluole.	Picoline.	Hydrosulphuric acid.
		Alliole.	Toluidine.	Hydrocyanic acid, and
		Propyle.	Cumidine.	various
		Butyle.	Pyrrhol.	Hydrocarbides.
		Amyle.	Pætinine.	
		Caproyle.		
		Hexylene.		
		Heptylene.		

Under the head of liquids are found a series of bodies capable of being arranged into three distinct groups, namely, acids, neutral substances, and bases. The solid products may be dismissed with a very few words. Paraffine is always found in the last portion which comes over in the distillation of tar, and when in an impure state, will either form a buttery mass, or have a distinct crystalline structure, the latter being due to the presence of a substance called naphthaline. This paraffine, when purified, is extensively used for artificial illumination. Naphthaline is not possessed of any great practical interest, further than this, that an excellent imitation of the essence of narcissus may be made by dissolving it in spirit, together with some essential oils, musk, &c.; in this way a very close resemblance to the true perfume can be prepared. Of the liquid portion I must speak more collectively than separately; but first, let me say that the colouring matters, *mauve*, *magenta*, *azaleine*, &c., are not obtained by the direct action of any reagents on the tar itself, but on a substance called *aniline*, which, on reference to the table, will be found under the head of bases. I will now proceed to describe the means by which aniline is prepared directly from coal tar.

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* From the *Dublin Hospital Gazette*.

The most rational method for its separation is as follows:—

The tar, as condensed in gas works, is agitated with muriatic or sulphuric acid, diluted with three or four times its volume of water; the agitation of the mixture is continued until the acid has taken up all the bodies with which it is capable of combining; it is then drawn off, and again shaken up with a fresh quantity of tar, until the acid is nearly neutralized. When this takes place it is again drawn off, evaporated nearly to dryness, and distilled with an excess of milk of lime; the volatile bases are thus set at liberty. Ammonia being the most volatile, comes over first, and by raising the temperature higher and higher, the rest distil in the order of their boiling points. Aniline is found among the liquids, coming over between 353° and 450° F. The manipulation of the tar, however, in the process which I have just described, is an exceedingly disagreeable operation, and presents many practical difficulties; it is therefore preferable in most cases to distil the tar first, and only operate on the most pure and limpid distilled oils.

Such is a very brief sketch of the processes now in use for the direct separation of aniline from tar.

There are two other principal sources of aniline, namely, its artificial preparation by the reduction of a substance called *nitro-benzole,* and from indigo; of these I must now proceed to speak more in detail.

In making aniline from nitro-benzole there are three distinct stages in the process. These are—

1st.—Preparation of benzole.
2nd.—Transformation into nitro-benzole.
3rd.—Reduction of nitro-benzole to form aniline.

We will now consider the means by which benzole is prepared: for this purpose we will have again to recur to the products of the distillation of tar. When this substance is rectified, the earlier portions which come over together with water and ammonia, consist of an oil lighter than water. This is collected separately as long as its specific gravity is less than that of water; it then undergoes further processes which I will describe presently. Then comes the well-known substance creasote, of anti-toothache notoriety, and which has a greater specific gravity than water. This is collected until it begins to thicken on cooling, when the distillation is finished. The light oil which I mentioned before, is placed in a still, and steam blown through it, which carries over the spirituous substances with vapour. These are now treated with sulphuric acid, washed with water, and then re-distilled from excess of milk of lime, until the specific gravity rises to 0·880.

This now forms the rectified mineral naphtha of commerce, a mixture of several neutral oils or hydrocarbons. According to Mansfield, light oil contains the following substance:—

Alliole	boiling at	140° F.	Cumole	boiling at	284° F.
Benzole	,,	176°	Cymole	,,	338°
Toluole	,,	230°			

Though the boiling points of these several bodies differ so materially, still it is very difficult to purify benzole by fractional distillation alone; the homologues of this body being, so to speak, dissolved in the vapour of benzole, are carried over and condensed with it. Benzole can be further purified by freezing, becoming solid when exposed to a low temperature. The degree of cold requisite to solidify the fluid depends upon its purity. If nearly pure it becomes solid at 32° F. On this property Mansfield bases a process for its purification. Benzole, $C^{12} H^{6}$, has the following properties:—it is slightly soluble in water, to which it communicates its peculiar smell; it is miscible with alcohol, and is a thin, limpid, colourless liquid, has a strong and rather agreeable odour; the specific gravity is 0·885. Benzole is an excellent solvent for camphor, essential oils, fat, wax, India-rubber, phosphorus, iodine, and various other bodies. The high illuminating power which its vapour is capable of conferring on the otherwise pale blue flame of hydrogen can be easily demonstrated by passing that gas through some benzole contained in a bottle, and lighting it as it issues from a jet.

The most important chemical property of benzole consists in its deportment with nitric acid, and giving rise to the production of nitro-benzole, to the manufacture of which we will now proceed.

Nitro-benzole is best prepared by allowing a fine stream of benzole, and another of the strongest nitric acid, to run together in a worm or long glass tube, kept cooled. The two liquids re-act on each other on coming in contact; heat is disengaged, and nitro-benzole formed. This is collected at the end of the worm, washed with water first, then with solution of carbonate of soda, and once again with water, when it is sufficiently pure for ordinary purposes.

Nitro-benzole, $C^{12} H^5 NO^4$, is a heavy oily, yellowish, and intensely sweet liquid, the specific gravity of which is 1·209. It has an odour closely resembling the essential oil of bitter almonds, and under the name of "essence of Misyraban," extensively used in perfumery for scenting fancy soaps, for which purpose it has one advantage over the oil of bitter almonds—it is less affected by alkalies.

Aqueous solutions of the alkalies have little or no effect on nitro-benzole; but when distilled with an alcoholic solution of caustic potash, together with a little aniline, a substance called azo-benzole is formed, which contains $C^{12} H^5 N$. There is a second compound called bi-nitro-benzole, containing $C^{12} H^4 N^2 O^8$, obtained by the action of concentrated nitric and sulphuric acids on benzole, about which I will speak hereafter.

REVIEWS

THE MAGAZINES.

Philosophical Magazine.—The most important contribution to the April number, is an interesting paper on the Existence of a new Element probably of the Sulphur series, by Mr. William Crookes, the able editor of our weekly contemporary, the *Chemical News.* The new metalloid, which has not yet been named, was discovered by the method of spectrum-analysis in some seleniferous deposits from the sulphuric acid manufactory at Tilkerode, in the Hartz Mountains. It gives rise to a well-defined green line, almost rivalling the sodium line in brilliancy. The properties of this new element have yet to be investigated. As our esteemed contributor, Dr. Noad, will probably notice this discovery in our next, we need not stay to examine Mr. Crookes' paper. The other articles in the number before us, are, with but one or two exceptions, theoretical essays on subjects uninteresting to the Pharmacist.

Pharmaceutical Journal.—The leading article in the last number of our contemporary is on the Representation of Pharmacy at the Exhibition of 1862; and the writer, with a view of eliciting a discussion on the subject, adverts to several important points relating to the exhibition of chemical and pharmaceutical products. Under the head of "Alchemy in the Nineteenth Century," some particulars are given of a company, which one Nicholas Papaffy, a Hungarian refugee, succeeded in getting up in June last, by representing that he had an invention by which he could "convert metals and other materials into standard silver." The alchemist having convinced several gentlemen of the reality of his invention, established the company, raised a considerable sum of money on bills drawn in the name of the firm, and then suddenly disappeared, leaving the furnace, crucibles, and, perhaps, the few pounds of silver which he pretended he had made, to liquidate the debts. We may here remark, that the swindler Papaffy called upon Messrs. Brown and Wingrove, the well-known refiners to the Bank of England, and informed them of his wonderful discovery. The refiners offered to place at his disposal the furnaces, crucibles, and other requisites for the performance of his experiments, with the understanding that they should be allowed to superintend the operations, and they further agreed to purchase all the silver he might manufacture. This proposal was of course too practical for the alchemist, who was naturally averse to any course which might lead to the exposure of his great secret. The transactions of the Society, the continuation of Dr. Taylor's paper on Facts and Fallacies connected with the Research for Arsenic, and several interesting articles selected from the scientific journals, make up the remaining contents of the number.

The Technologist.—This month the editor discourses upon the different varieties of Sugar, and describes the processes employed to extract saccharine matter from vegetable substances. The plants yielding sugar are extremely numerous, but the most important are the sugar-cane, the white-beet, and the sugar-maple. The conversion of starch and *lignin*, or woody-fibre, into sugar, by the action of either sulphuric acid or diastase, is a most interesting subject, and is fully entered into by Mr. Simmonds. The following extract contains some particulars of the artificial preparation of sugar :—

> "1. Sugar, similar to that of grapes, may be prepared by boiling one part of the starch of potatoes or flour with from one-hundredth to one-tenth of sulphuric acid, and four parts of water, for thirty-six or forty hours, care being taken to renew the water as it evaporates. At a higher pressure and temperature the change may be effected more rapidly with a smaller quantity of acid. The excess of acid is then to be saturated with lime, the sulphate of lime separated, and the liquid concentrated by sufficient evaporation. 2. The starch of flour soon loses its gelatinous consistence when moistened with an extract of sprouted barley ; it is transformed into a liquid, and if the barley is in sufficient quantity, it is changed in the course of a few hours into sugar of grapes, provided the temperature be maintained at 158 to 167 deg. Six parts of barley which has germinated produce twenty-five parts of sugar of grapes. 3. Sugar may also be procured by taking twelve parts of linen rags, or paper cut into small pieces, mixing them intimately and gradually with seventeen parts of concentrated sulphuric acid, or with five parts of sulphuric acid, and one part of water : the temperature must be kept moderate. After twenty-four hours the mass is to be dissolved in a quantity of water, and boiled for ten hours ; it is then to be neutralised with chalk, filtered and evaporated to the consistence of syrup, and crystallised. Chemists have not yet been able to obtain sugar prepared by these artificial methods in regular crystals like cane-sugar, although there is little doubt that these two species differ from each other merely in the quantity of water with which they are combined."

An interesting article entitled "The Gold Pen—its History and Manufacture ;" and a very masterly paper by Mr. Rock, on the Hippopotamus Teeth or Tusks, so invaluable to the dentist, are particularly worthy of attention.

American Journal of Pharmacy.—We have received the last number of this excellent journal, which is, perhaps, the most faithful record of the progress of pharmaceutical science in existence. It is published every other month by authority of the Philadelphia College of Pharmacy. The contents of the present number are highly interesting. An important paper on Aconitia and its substitutes, from the pen of Professor Procter, will be found in another portion of our journal, and in our next we will endeavour to find room for Mr. Watson's communication on the preparation of Citrate of Magnesia.

Journal of the Maryland College of Pharmacy.—This is the organ of the second great pharmaceutical institution in the United States, and it will bear comparison with the publication noticed above. The most important original articles in the quarterly part published last month, are on Citrate of Iron and Quinia, by W. S. Thompson ; Extract of Cimicifuga, by J. F. Moore ; Plasma Plumbi, by Charles S. Tilyard ; and Elixir of the Valerianate of Ammonia, by T. H. K. Enos. All these papers were read before the College in February.

NEW BOOKS.

Anderson (W. A.)—Ten Lectures on Fever. 5*s.*
Dickie (G.)—Botanist's Guide to the Counties of Banff, Aberdeen, &c. 6*s.*
Faraday's Six Lectures on a Candle. 3*s.* 6*d.*
Jenner (Dr. W.)—On Diptheria. 2*s.* 6*d.*
Lupton's Anatomy of the Horse. Part I. 31*s.* 6*d.* and 45*s.*
Wells (D. A.)—Annual of Scientific Discoveries. 7*s.* 6*d.*
Wood (A.)—Class-Book of Botany. 12*s.*

PUBLICATIONS RECEIVED.

English.—Smedley's Practical Hydropathy—Pharmaceutical Journal—Technologist—Geologist—Phytologist—Weldon's Register—Journal of the Society of Arts—Journal of Health—Educational Times—Weekly Reporter—Practical Mechanics' Journal.

American. *For March.*—Sillimans' Journal of Science and Arts.—Scientific American.—American Druggists' Circular.—Drug Reporter.—American Medical Times.—American Stock Journal.—American Agriculturist (New York).—Maryland and Virginia Medical Journal.—Journal of Maryland College of Pharmacy (Baltimore.)—American Journal of Pharmacy.—Dental Cosmos.—Medical and Surgical Reporter (Philadelphia).—Journal of Rational Medicine.—The Cincinnatus (Cincinnati).—Boston Medical and Surgical Journal.—Nashville Journal of Medicine and Surgery.—New Orleans Medical and Surgical Journal.—Montreal British American Journal.

NEW INVENTIONS AT THE SOCIETY OF ARTS' EXHIBITION.

THE Thirteenth Annual Exhibition of New Inventions, at the Society of Arts, Adelphi, opened to the public on Easter Monday. As may be expected, the majority of the articles exhibited belong to the mechanical and engineering arts; a comparatively small number having relation to our own peculiar speciality.

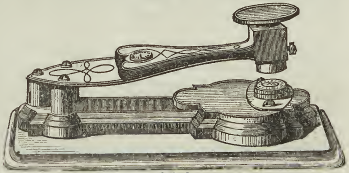
Of these one of the most interesting groups consist of specimens of *Aluminium, and Aluminium Bronze* (88), shown by Bell Brothers, Newcastle-on-Tyne. In a pure state aluminium has not answered the expectations that were so freely indulged in some two years since; but its alloys promise to become exceedingly valuable. The bronze, made of 10 parts of aluminium and 90 of copper, is remarkable. It is a perfect chemical combination of the exact equivalents of the two metals, having a beautiful golden colour, and susceptible of taking a high polish. In tenacity it surpasses copper and iron, being nearly equal to the best steel in this respect; it is malleable, both in the cold and hot state, and has been used with great advantage as a material for the bearings of locomotives and other machinery.

Amongst the most useful chemical implements exhibited may be mentioned the *Glass Casks* (149), of Hubart and Cantillon, of Liege. These are blown in moulds, are furnished with ground glass stoppers, in the place of bungs, and glass taps. For acids and many chemical liquids they appear far superior to the glass carboys in ordinary use. Some of them are encased in wicker work, and would form really elegant appendages in any laboratory or chemist's dispensary.

An ingenious contrivance, termed a *Self-Acting Valve*, for excluding air from empty casks, is exhibited by Mr. Leslie (170).

Mr. Seithen's alteration in the manufacture of *Rush or Straw Envelopes*, for packing wine and other bottles (172), seems to us the reverse of an improvement, as it leaves the neck exposed to injury. Nor can we see the advantage of his *Artificial Corks* (174), formed of a thin veneer rolled up spirally into a cylinder and cemented.

The *Patent Email Letters* (218), of C. A. Schneider, are for the purpose of being fixed upon the glass of windows. They are fastened inside, and, being very thin, offer no impediment to the easy cleaning of the glass. In appearance they are exceedingly effective, and, being perfectly transparent and brilliant in colouring, they promise to show as well by night as by day.



Of the mechanical articles exhibited, interesting to the pharmacist, the most useful appears to be the *Spring Lever Embossing Press*, manufactured by Pinches and Co., Oxendon Street (208). It is worked by a slight blow with the closed hand, and is admirably adapted for stamping prescriptions, not requiring more than a small fraction of a second to perform its work, which it does most efficiently; and as its construction is exceedingly simple, having neither hinge or pivot, it cannot possibly, with fair usage, get out of repair. It is equally applicable to note paper, envelopes, or labels.

The *Apparatus for Washing Photographic Prints* (100), appears by far too complicated in its construction ever to come into general use; the *Bi-Valve Respirators*, and other contrivances of Mr. White, are additions to the interminable list of impracticable ingenuities. The *Hydraulic Eye Drop* (83), is a tube with an elastic upper part, which enables a portion of liquid to be drawn up by atmospheric pressure, and ejected into the eye as may be required.

Rostaing's *Compounds of Gutta Percha for Dental Purposes* (84), do not appear in any respect superior to those hitherto in use in this country. They are formed by adding powdered blende, oxides of zinc, and a preparation of tannin to purified gutta percha. The utility of the latter addition we much question, as we are not aware that tannin has the slightest action on the gutta percha.

The *Bar Hive* (131) of Major Munn is an ingenious contrivance for the removal of separate combs of honey, but its very high cost must be prohibitory to its profitable employment; nor does it offer any working advantages over the much simpler and cheaper moveable frame hives of Mr. Tegetmeier, that have been previously exhibited here.

The *Seltzine Apparatus* (220), for soda and other effervescing waters, is formed of two bottles, each having one perfectly flat side; these are held together by vulcanized india rubber bands, so that they appear like one bottle with a diaphragm. When they are filled respectively with the acid and alkaline solutions, both can be poured out together; but as the mouth of each bottle is necessarily semi-circular, we do not see how they are to be conveniently stoppered, nor can we discover any remarkable utility in the contrivance.

The Exhibition will remain open for more than a month after the date of our publication, and, although not particularly rich in chemical appliances, it contains so many ingenious inventions of a mechanical and economical character, that it will be found amply to repay for the time required to give it a careful inspection. The Exhibition is open gratuitously by a member's order.

MORSON'S POISON LABELS.

The frequent occurrence of accidental poisoning has led to numerous devices for the purpose of distinguishing bottles containing poison. Those of Mr. Toogood, that have been recently noticed in our pages, answer exceedingly well for dispensaries where the same bottle is always used for the purpose of holding the same substances, but it is obvious that any particular form of bottle is not desirable for general use, as, when emptied of its poisonous contents, it would certainly be used for other substances, and thus the caution its peculiar shape would, in the first instance, suggest, come to be disregarded. A label with a skull, or Death's head figured upon it, as sometimes employed by Pharmacists, is certainly sufficiently striking, but its use shows a fearful want of taste, and the suggestion in a sick room is likely to havea very injurious effect. Messrs. Morson have recently issued a set of gummed poison labels for dispensing. They are of very conspicuous appearance, being white letters, raised up or embossed upon a black ground. From their singularity of appearance they readily catch the eye, and even in the dark the raised letters may be distinguished by the touch. We might suggest that should the labels be required for more permanent use, they may be brushed over with a coat of varnish after being affixed to the bottle, which would then admit of their being washed without risk of their removal. The specimens inserted above, simply show the style of the labels, it being impracticable to give the embossed or raised character to the lettering in our pages.

POISON.

ENTERED AT STATIONERS HALL.

NOT TO BE TAKEN

ENTERED AT STATIONERS HALL.

FOR OUTWARD APPLICATION ONLY.

ENTERED AT STATIONERS HALL.

POPULAR SCIENTIFIC INFORMATION.—The following exquisite *morceau* recently appeared in our respected contemporary the *Sunday Times*:—

> "The atropa belladonna, or common potato, is a member of the same family as the tobacco plant, and there may be obtained from the leaves of E. Solanine a similarly acrid and narcotic poison, two grains of which would prove fatal."

Can it be a matter of surprise that the purple berries of the deadly nightshade have been sold in the streets of London as whortleberries, made into pies, and eaten with fatal effects; when those, whose office it is to diffuse information, confound that plant, one of the most fatal of our indigenous species, with the wholesome potato, and then state that there may be obtained from the E. Solanine, a similarly acrid narcotic poison? What is the E. Solanine? And to what is the poison similar? Were the editor's intellectual powers suffering from the narcotic influence of a common potato taken in conjunction with chops and stout—the latter having been prescribed q. s.?

PARAFFIN FOR COATING GLASS STOPPERS FOR BOTTLES CONTAINING CAUSTIC ALKALIES.—It is a well known fact, that caustic alkalies, when kept in ground glass stoppered bottles, act on the ground surface of the glass, thereby frequently fixing the stopper so firmly in the bottle, that it is impossible to extract it even by application of heat, without breaking the bottle. As a remedy for this annoyance Kliknowstroem recommends the application of a little paraffin to the ground surface of the stopper. As the paraffin is not acted on by alkalies, the stopper will remain loose.

PARCHMENT PAPER.—This useful modification of ligneous fibre is prepared by exposing common unsized paper to the action of a mixture of two parts of strong sulphuric acid and one of water for no longer time than is taken in drawing it through the liquid. If the acid varies much from the proper strength the paper will be charred, or else changed into dextrine, and if too long exposed the latter change will take place. It should be immediately well washed in water, and afterwards dried. It is tough, firm, impervious to water; and though very similar to parchment, it is not, like it, decomposed by heat and moisture.

THE MONTH

Quack Advertising.—We learn from the *Dublin Medical Press* that the authorities of Aix-la-Chapelle have prohibited all advertisements, either in newspapers, or as bills fixed on walls, or otherwise circulated, of therapeutical substances offered as remedies in disease either for man or beast, under a penalty of 30*s.*

Dog-tasting.—From the vivid report of the International Dog-fight, published in the *New York Herald*, we extract the following description of a novel and delicate toxicological operation :—" The bull-terrier, Bess, having been washed by Jem M'Loughlin, a fine-looking Irishman, and trainer of Rosie, she was tasted—that is to say, M'Loughlin applied his tongue to the dog to taste if any pernicious drug had been placed upon her to poison her opponent during the fight. Bess was then concealed behind a curtain of coats held by closely-crowded men, and Rosie underwent a similar process at the hands and mouth of Sheffield George. So particular are the trainers about this drugging business, that in champion matches it is usual for the two trainers to exchange clothes ; but in this instance the point was waived."

British Association for the Advancement of Science.—The thirty-first meeting of the Association will be held at Manchester in the early part of September. William Fairbairn, Esq. is the President elect.

Poisonings.—An inquest was recently held in Walmgate, York, on the body of a girl, sixteen years of age, named Blain, the daughter of a publican in that street. After she retired to rest on the previous night, her parents became alarmed by hearing her scream, and on going to her, her limbs were found in a state of rigidity. In answer to a question put by her father, she admitted that she had taken poison. A surgeon was at once called in, and he succeeded in administering an emetic, which, however, did not act, and her teeth were so firmly set that the stomach-pump could not be introduced. The poor girl died in about an hour after the surgeon had been sent for ; and it was afterwards ascertained that, at eleven o'clock the same evening, she purchased of Mr. Leak, druggist, Walmgate, a sixpenny packet of Wilde's vermin killer, which contained strychnia, stating it was for her father to kill rats. She had taken about half the packet in a glass of ale. It appeared that an unfounded report had been propagated that she was *enciente*, and that this had preyed on her spirits. The verdict of the jury was, that she had poisoned herself in a fit of temporary insanity.—An inquest has been held at Leeds on the body of a gentleman about twenty-five or twenty-six years of age, who was found dead in bed at Mr. Wood's boarding-house in Wellington-street, under such circumstances as led to the suspicion that he had committed suicide. Mr. Sagar, surgeon, who had made a post mortem examination of the body, said, that all the internal organs were in a very healthy state ; but there was no food in the stomach, and the whole of the interior lining of the stomach was highly congested. He had analyzed the contents of the stomach, and had detected the usual appearances of poisoning by prussic acid, and he had no doubt that the cause of death was an over dose of prussic acid. A medicine case, with small bottles of calomel, French prussic acid, tartar emetic, and laudanum, was found upon the deceased ; and the bottle which had contained French prussic acid had been recently emptied. It appeared that the deceased had been staying at the George Hotel, Bradford, during the week previous to his visiting Leeds ; but nothing was known of him at that town, which he had left without paying his hotel bill. After the coroner had summed up, the jury found a verdict to the following effect :—" That the deceased, whose name to the jurors is unknown, destroyed himself by taking prussic acid ; but that there is no evidence to show what state of mind he was in at the time."—On Saturday, March 23, Mr. Walthew, deputy-coroner for East Middlesex, held an inquest at the London Hospital on the body of John Bride, aged forty-eight, a medical practitioner, residing in High-street, Shadwell. Deceased suffered from disease of the heart, for which he was in the habit of taking chloric ether. On the evening of Tuesday last he was discovered to have taken a large quantity of opium ; and although he was removed to the London Hospital, and every effort used to save his life, it was ineffectual. The jury returned a verdict of temporary insanity.

Accident from the Explosion of Vapour of Ether.—Professor Procter, the able editor of the *American Journal of Pharmacy*, lately met with an accident at his establishment in Philadelphia, but fortunately escaped injury. He was engaged in distilling some ether from a preparation, when the apparatus was broken, and the escaping ether-vapour on becoming mixed with the air of the room exploded, and blew out both windows. By the timely and judicious application of water, the fire was soon extinguished.

The Doctor and the Chemist.—In our February number, we noticed under this heading a case in which a Dr. Arkwright had attempted to fasten upon a pharmacist named Marshall a charge of improper treatment. The case appears to have excited considerable interest amongst the trade ; and we learn that the learned apothecary who gave such an unhesitating opinion on the matter is repudiated by his professional brethren.

Correspondence

THE NEW AMERICAN TARIFF.

FROM OUR SPECIAL CORRESPONDENT.

New York, March 20.

I trust the enclosed analysis of the new tariffs will arrive in time for your next impression. Your readers will perceive the vast difference between the two—that emanating from the Southern States is simple and statesmanlike, whereas the Washington production is stupid and suicidal in the highest degree. The former is to come into operation in May, the old tariff remaining in force meanwhile; the latter will be law before this reaches you, viz., on the 1st proximo. The Washington wiseacres have not only passed what all sane persons concur in pronouncing the most ignorant, useless, blundering, and (especially at the present juncture) pernicious enactment that was ever concocted by a civilized people; but have issued it in such a bungling and loosely-prepared manner, that it has been quite a labour to arrange it in any thing like a tabular form. They show their own appreciation of its merits by fixing its inauguration for All Fools'-day,—nothing could be more appropriate. It contains so many absurd and conflicting clauses, that it is doubted by many if it will really come into operation at all.

I regret to inform you, that in consequence of numerous complaints from your subscribers relative to the postage charges on the last number of the *Chemist and Druggist*, I have felt it my duty to call on the postmaster; and I find that the *uncertain* illiberality of the last administration has become certain and fixed under the present *régime*. It was formerly a kind of bargain between your subscribers and the office, who always tried to get 16 cents per copy, but failing that, accepted 2 cents. Now, however, they positively refuse to deliver the Journal for less than 16 cents, as it weighs over three ounces. I am still in hopes, backed by the very large and influential body of your subscribers in the States, of having this abominable tax modified. Meanwhile it is flattering to the character of the Journal, that rather than miss its contents, the charge, equal to 8*d.* of your money, has in most instances been paid.

P.S.—The opinion is gaining ground that not only will the Northern tariff never come into practical operation, but that the same fate awaits the Southern.

[For the reasons stated in our first leader we withhold the publication of our correspondent's analysis of the rival tariffs for the present.—ED.]

To the Editor of the "Chemist and Druggist."

A CARD.

Sir,—The following card so fully justifies your remarks on the "Medical Inquisition," that I think you ought to publish it in your journal:—

> MR. A. H. CARMICHAEL,
> **SURGEON, ETC.**
>
> Begs to inform his friends and the public in general, that he has REMOVED to the House and Shop, lately occupied by Mr. VERITY and Mr. KNOWLES, Chemist, the latter of which he has
>
> OPENED,
>
> under the charge of a thorough qualified person, with an entire NEW STOCK of Genuine
>
> **DRUGS, PERFUMERY, ETC., ETC.,**
>
> which he purposes disposing at the usual Druggists' charges.

Mr. Carmichael is an L.R.C.S., Edinburgh, 1846, and L.S.A., London, 1854; but although authorised to append these formidable initials to his name, his grammar appears to have been fearfully neglected. How Messrs. Verity and Knowles are concentrated into one "chemist," and how the latter gentleman enjoys being "opened," even by "a thorough qualified person," I will not venture to guess. Again, how Mr. C. purposes "disposing" drugs, &c., is a puzzle to your constant reader,

W. K.

THE RIGHT TO PRESCRIBE.

Crown-street, Liverpool, April 5, 1861.

Sir,—Your correspondent, "An Old Chemist," calls attention to the fact that the law does not forbid a chemist to prescribe. It is worthy of remark, that prior to the passing of the Apothecaries' Act, a medical practitioner had no more *legal* qualification than a chemist. The simple question is, Did that Act deprive the chemist of any privilege he possessed before in conducting his business? It is perfectly clear it did not, as he is specially excepted by name, whatever additional benefits it may have conferred upon the medical man. In fact, as your correspondent observes, it rather gives the chemist a legal standing. But there is another and more important view of the subject, viz.—the common birthright of every Englishman at least, to recommend the goods in which he deals. It would be a most serious infringement of our common liberties to take away from us a right which belongs to every man; and it is gratifying to know that notwithstanding all the divisions and disunions amongst chemists, they have invariably risen up, almost as one man, against any enactments to deprive them of this right. Again and again it has been openly attempted, but always defeated;

latterly the object has been sought in more indirect and subtle enactments, but up to this time there is no Act whatever to prevent a chemist prescribing. The question as to how far he is qualified for this by knowledge, or where the marks are to be set betwixt him and a regular medical man, is altogether another subject; but it will be his own fault if he allows others (and those his constant opposers), either to deprive him of any one of his liberties by oppressive Acts of Parliament, or to be his tutors and judges of what knowledge he has, or is to obtain, to conduct his business. In conclusion, I cannot help drawing your attention to another legal injustice upon the chemist, that is, the number of licenses he is often obliged to pay for. Patent medicines, if he sells these; tobacco, if he sells snuff or cigars; tea and coffee, if he sells pepper; sweets, if he sells British wines; the stamp duty upon numberless articles; and a fine of from 2*l.* to 10*l.* about every ten years for not understanding the stamp laws, which the authorities at Somerset-house have often admitted they do not understand themselves. As no other tradesman has so many legal favours conferred upon him, it is time some of the united societies of chemists brought this subject before the proper authorities.—I am, sir, yours respectfully,

J. B.

NOTES AND QUERIES

United Society.—O. V. M. complains that several of the names in last list of new members are wrongly spelt. We have handed our correspondent's letter to Mr. Buott, who furnished us with the names as printed, and with whom the blame entirely rests. While fully agreeing with our correspondent that the secretary should be more careful, we cannot help adding that names are often so illegibly written—and O. V. M.'s own signature is a flagrant instance—that it is quite impossible to make them out, and we would strongly recommend that a card should be forwarded with every future subscription.

Indelible Marking Ink.—A. H. (Newcastle-on-Tyne.)—We believe Soubeiran's recipe for marking ink to be a good one:—nitrate of copper, 3 parts; carbonate of soda, 4 parts; nitrate of silver, 8 parts; mix and dissolve in liquor of ammonia, 100 parts. A valuable paper on indelible inks appeared in the first volume of this Journal, page 136.

Camphor Mixture.—J. F. (Amersham) wishes to be furnished with a recipe for highly concentrated camphor mixture. Possibly one of the following preparations may prove useful to him:—*Parrish's camphor mixture.* ℞.—Aquæ camphoræ, f℥iij. Spiriti lavendulæ compositi, f℥j. Sacchari, ʒj. Misce. Give a tablespoonful every two hours in diarrhœa and cholera, adding ten drops of laudanum where there is much pain. This preparation was originally prescribed by Dr. Parrish, senior, of Philadelphia, many years ago, and has since become a standard remedy. *Hope's camphor mixture.* ℞—Aquæ comphoræ, f℥iv. Acidi nitrosi, ♏xxx. Tincturæ opii, ♏xx. vel xl. Misce. Dose, a tablespoonful every two hours in diarrhœa and dysentery. It is to be particularly observed that the good effects of this famous remedy depend on the employment of *nitrous* acid, not *nitric* acid, in conjunction with opium. Mr. Hope, by way of trial, substituted the latter acid for the former in the mixture, but found that the altered preparation was not in any way beneficial to his patients.

The Eclectic School of Medicine.—E. C. C. The so-called "eclectics" profess to have selected from the various systems such principles as have been proved to be sound and rational. The concentrated vegetable remedies which they employ in the treatment of diseases have lately obtained considerable popularity. In the *American Eclectic Dispensatory*, by Dr. King, of Cincinnati, the various resinoids and alkaloids used in the eclectic treatment are fully described. The disciples of the new school pay much greater attention to therapeutics than the regular practitioners, and they are rapidly rising in the estimation of the public. Cincinnati boasts of an Eclectic Institute, and may be regarded as the centre of medical eclecticism. We can tell you nothing about the person referred to in your letter, and cannot undertake to examine and report upon the work which bears his name.

Mist. Bismuthi Comp.—In the formula given for this preparation in our last, for "pulv. tragac. Co.; sodæ sescarb. ana, ℥jss," read "ʒjss." In the prescription sent to us the ounce symbol was given instead of the drachm, and the error escaped our observation.

"A Subscriber from the first" is informed, that the American preparations named by him have not yet been introduced into this country.

P. P.—"Tincture for the toothache" is liable to stamp duty.

"Pharmacist."—We are sorry we cannot give you the information you require. We avoid expressing opinions on medical subjects.

"A Subscriber" (Leeds) would be thankful for a formula for "Syr. Hemidesmi Ind."

"Ventilator" wishes to know if there is any method of preventing the condensation which takes place on the inside of the shop window when the gas is burning.

The creditors of W. D. Hodgman, chemist, late of Foulsham, Norfolk, and afterwards living in Bedford-square, London, are very desirous to know his present whereabouts.

[Several queries are again excluded owing to press of matter.—Ed.]

TRADE REPORT.

Friday, 12th April, 1861.

The ease in the money market, which we noticed in our last, was followed by a reduction of 1 per cent. in the minimum rate of discount by the Bank Directors, on the 21st ultimo; also on the 4th instant a reduction of 1 per cent., and on Thursday last another decline of 1 per cent. took place, the quotation now standing at 5 per cent. Although a decline of 3 per cent. in the value of money has taken place during the month, there is little perceptible improvement in business at present; and whilst the Continent continues in the present unsettled state we do not anticipate much improvement, buyers showing little disposition to purchase more than their present wants require. There is, however, a steady home trade doing, and as money is expected to be more easy, we look forward to an increase in all departments of business. Consols this evening closed at 91½, ⅝ for money, and 91¾ for the account.

Chemicals have not improved in demand; and except for oxalic acid, in which a large business has been done at 8*d.* to 9*d.*, according to make and delivery, all other articles had remained dull and sales only in retail parcels. Tartaric has closed at 1/10½ to 1/11. Iodine remains quiet at 4¾*d.* for seconds and 5*d.* for firsts. A good business has been done in citric acid at 1/10 to 1/10½. Prussiate of Potass is dull at 1/2 to 1/2½. A moderate business has been done in flour of brimstone at 16/ to 16/3. Sulphate of copper is dull at 31/ to 32/, according to quality. Bichromate is dull at 9½*d.* to 10*d.* Cream of tartar is quiet at 130/ to 132/6 for the finest French. Refined saltpetre is dull of sale at 38/ to 38/6. A large business has been done in American spirits of turpentine at 30/6 to 31/, which is lower. Soda crystals dull, £4. 10*s.* ex ship.

There has been rather more doing in the drug market during the last fortnight, and prices are rather better supported. A good parcel of castor oil has been sold at 6¼*d.* for fine seconds. A parcel of good China rhubarb realized 2/4 to 2/8. Jalap is steady, sales made at 4/6 to 4/8. Turkey opium is rather cheaper. Oil aniseed advanced to 6/11 to 7/ on the spot and for arrival, but is now quiet at 6/10 on the spot. Oil Cassia is 3*d.* lower, sales made at 9/3. Aloes are without change. Ipecacuanha has been sold at 3/4 to 3/7.

PRICE CURRENT.

☞ *These quotations are the latest for* ACTUAL SALES *in Mincing Lane. It will be necessary for our retail subscribers to bear in mind that they cannot, as a rule, purchase at the prices quoted, inasmuch as these are the* CASH PRICES IN BULK. *They will, however, be able to form a tolerably correct idea of what they ought to pay.*

	1861.				1860.			
	s.	d.	s.	d.	s.	d.	s.	d.
ARGOL, Cape..per cwt.	90	0..	110	0	105	0..	117	6
French	60	0..	85	0	60	0..	80	0
Oporto, white	0	0..	0	0	0	0..	0	0
red	50	0..	51	0	48	0..	50	0
Sicily	85	0..	90	0	75	0..	80	0
Naples, white	85	0..	90	0	100	0..	105	0
red	0	0..	0	0	0	0..	0	0
Florence, white	95	0..	105	0	90	0..	100	0
red	95	0..	97	6	85	0..	95	0
Bologna, white	125	0..	130	0	125	0..	130	0
ARROWROOT, duty 4½d. per cwt.								
Bermuda ....per lb.	1	1..	1	4	1	3..	1	7
St. Vincent	0	2¾..	0	6	0	2¾..	0	6¾
Jamaica	0	2½..	0	4½	0	2 ..	0	5½
Other West India	0	2..	0	3¼	0	2..	0	3¼
Brazil	0	1½..	0	2¼	0	1½..	0	2¼
East India	0	1¾..	0	2½	0	1¾..	0	3
Natal	0	2½..	0	7½	0	3½..	0	7½
Sierra Leone	0	2½..	0	3½	0	2½..	0	3½
ASHES,......per cwt.								
Pot, Canada, 1st sort	32	6..	33	0	32	0..	33	0
U. S., 1st sort	0	0..	0	0	0	0..	0	0
Pearl, Canada, 1st sort	33	6..	34	0	32	0..	32	6
U. S., 1st sort	0	0..	0	0	0	0..	0	0
BRIMSTONE,								
rough ......per ton	£8	10..	0	0	£10	0..	10	10
roll	13	10..	14	0	14	10..	15	0
flour	16	0..	16	5	16	10..	17	0
CAPERS,								
French......per cwt.	£3	0..	£5	0	£3	10..	£6	15

	1861.				1860.			
CHEMICALS	s.	d.	s.	d.	s.	d.	s.	d.
Acid—Acetic, per lb.	0	4 ..	0	4½	0	4..	0	4½
Citric	1	10..	1	10½	2	3 ..	0	0
Nitric	0	5..	0	5½	0	5..	0	5½
Oxalic	0	8¼..	0	9	0	8½..	0	0
Sulphuric	0	0¾..	0	1	0	0¾..	0	1
Tartaric, crystal	1	10½..	1	11	2	1..	0	0
powdered	2	0..	0	0	2	2..	0	0
Alum ......per ton	£6	5	£6	10.6	£7	5	£0	0
powder	7	10..	8	0	8	10..	0	0
Ammonia, Carbon, lb.	0s.	5¾d.	0	6d.	0s.	6½d.	0	6¾
	£	s.	£	s.	£	s.	£	s.
Sulphate ..per ton	14	0..	14	10	14	0..	14	10
Antimony, ore	16	0..	17	0	16	0..	17	0
crude, per cwt.	30s.	0d.	40s.	0d	36s.	0d.	38s.	0d
regulus	52	0..	53	0	50	0..	52	0
French star	51	0..	0	0	50	0..	0	0
Arsenic, lump	17	0..	18	0	18	0..	0	0
powder	9	0..	10	6	10	6..	11	0
Bleaching Powder	10	0..	10	6	11	3..	0	0
Borax, E. I. refined	35	0.	45	0	44	0..	64	0
British	65	0..	0	0	65	0..	70	0
Brimstone, roll	13	10..	14	0	14	10..	15	0
flour	16	0..	16	3	16	10..	17	0
Calomel......per lb.	2	9..	0	0	2	10..	0	0
Camphor, refined	1	10..	2	3	2	6..	0	0
Copperas, green, pr tn.	65	0..	0	0	65	0..	0	0
Crrsiv. Sublimate, lb.	2	0..	0	0	2	1..	0	0
Green, Emerald, pr lb.	0	9..	1	0	0	9..	1	0
Brunswick, cwt.	14	0..	42	0	14	0..	42	0
Iodine, dry ..per oz.	0	4½..	0	5	0	6 ..	0	6½
Ivory Blk. drop pr. ct.	8	0..	9	0	0	0..	0	0

PRICE CURRENT—*continued.*

	1861.				1860.			
CHEMICALS.	s.	d.	s.	d.	s.	d,	s.	d.
Magnesia, Carbon. ct.	42	6..	45	6	42	6..	45	0
Calcined, lb.....	1	6..	2	0	1	6..	0	0
Minium, red, per cwt.	22	6..	23	0	23	6..	24	6
orange	35	0..	0	0	36	0..	0	0
Potash, Bichrom., lb.	0	9½..	10	0	0	11 ..	0	11¼
Chlorate........	0	10½..	0	0	0	11..	0	11½
Hydriodate ..oz.	0	5¼..	0	5½	0	7..	0	7¼
Prussiate ....lb.	1	1½	1	2	1	3..	1	3½
red..	2	2..	0	0	2	3..	0	0
Precipitate, red per lb.	2	9..	2	10	2	10..	2	11
white....	2	10..	0	0	2	10..	0	0
Prussian Blue	1	6..	1	10	1	6..	1	10
Rose Pink ..per cwt.	29	0..	30	0	29	0..	30	0
Sal-Acetos....per lb.	0	10..	0	11	0	11 ..	0	0
Ammoniac, cwt.								
British ..	32	0..	33	0	32	6..	34	6
Epsom	8	0..	8	3	8	0..	0	0
Glauber	3	6..	5	6	5	0..	5	6
Saltpetre, refined....	38	0..	38	6	42	6..	44	0
Soda, Ash, per degree	0	2⅛..	0	0	0	2⅝..	0	2⅞
Bicarbonate ...cwt.	13	0..	13	6	15	6..	16	0
Crystals....per ton	£4	10/	.£0	0/	£5	5/	.£5	10
Sugar Lead, white, ct.	38s.	0d.	39s.	0d.	38s.	0d.	39s.	0d.
brown..........	28	0..	0	0	28	0..	0	0
Sulphate Quinine, oz.								
British in bottle ..	7	8..	8	0	5	8..	6	0
Foreign	6	6..	7	0	5	6..	5	9
Sulphate Zinc ...cwt.	14	6..	15	0	14	0..	0	0
Verdigris ....lb.	1	3..	1	5	1	8..	2	0
Vermillion, English..	3	0..	3	4	3	6..	3	4
China....	2	6..	2	9	3	6..	3	9
Vitriol, blue or Roman								
per cwt...	32	0..	33	0	36	0..	36	6
CHICORY.... per cwt.								
Foreign (duty, 6s.) ..	13	6..	14	6	12	6..	13	6
COCHINEAL...per lb.								
Honduras, black....	2	10..	4	10	3	9..	5	3
silver	2	6..	3	4	3	3..	4	0
pasty	2	3..	2	6	2	10..	3	2
Mexican, black......	2	10..	3	6	3	6 .	4	0
silver......	2	6..	2	10	3	2 .	3	3
Lima	3	0..	3	9	3	3..	4	0
Teneriffe, black	2	10..	4	0	3	6..	4	2
silver	2	7..	2	10	3	3..	3	5
COCOA (duty 1d. per lb.)								
Trinidad, red, in								
bond......per cwt.	60	0..	80	0	75	0..	100	0
gray	58	0..	64	0	72	0 .	78	0
Grenada...........	55	0..	65	0	63	0..	74	0
Dominica & St. Lucia	54	0..	60	0	63	0..	67	0
Para	60	0..	65	0	63	0..	67	0
Bahia	54	0..	57	0	50	0..	52	0
Guayaquil	63	0..	64	0	71	0..	73	0
COFFEE, in bond (duty 3d. per lb.)								
Jamaica, good, mid.								
to f...............	73	0..	100	0	72	0	100	0
low mid. & mid.	66	0..	72	0	66	0..	72	0
fine ordinary ..	63	0..	65	0	64	0..	65	0
good ordinary ..	60	0..	62	0	59	0..	63	0
ord. and triage..	50	0..	58	0	46	0..	59	0
Ceylon, Nat. gd. & f.	62	0..	65	0	59	6..	64	0
ordinary	57	0..	61	6	56	0..	58	6
Plantation, fine..	85	0 .	88	0	88	0..	94	0
fine mid.	77	0..	84	0	79	0..	86	0
good mid.......	72	6..	76	0	75	0..	78	0
middling	68	6..	72	0	70	0..	74	0
fi. ord. to low md.	65	0..	67	6	64	0..	69	0
mixed and triage	50	0..	63	0	48	0..	65	6
Malabar and Mysore	58	0..	78	0	57	0..	78	0
Madras	58	0..	76	0	58	0..	76	0
Tellicherry	64	0..	90	0	62	0..	88	0
Mocha, fine	112	0	120	0	120	0	128	0
garbled	93	0	110	0	98	0	120	0
ungarbled	62	0.	100	0	66	0..	86	0
Batavia, yellow	63	0..	76	0	65	0..	78	0
pale and mixed..	58	0..	62	0	54	0..	64	0
Sumatra...........	52	0..	56	0	50	0..	52	0
Padang	55	0..	61	0	54	0..	60	0
African	70	0..	85	0	80	0..	90	0
Brazil, f. ord. & wshd.	60	0..	70	0	60	0..	72	0
good ord.	55	0..	60	0	55	0..	59	0
ordinary	52	0..	54	6	51	0..	58	0

	1861.				1860.			
COFFEE.	s.	d.	s.	d.	s.	d.	s.	d.
La Guayra	60	0..	76	0	62	0..	78	0
Costa Rica, mid. to f.	67	0..	80	0	66	0..	84	0
good and f. ord.	60	0..	66	0	62	0..	65	0
Cuba, mid. to fine ..	67	0 .	80	0	68	0..	80	0
f. ord. & f. f. ord.	63	0..	66	0	62	0..	68	0
ord. & good ord.	57	0..	62	0	55	0..	63	0
Porto Rico	60	0..	78	0	62	0..	78	0
St. Domingo........	58	0..	64	0	56	0..	64	0
DRUGS,	£.	s.	£.	s.	£.	s.	£.	s.
Aloes, Hepatic, pr. cwt.	3	10..	9	10	3	10..	9	0
Socotrine	6	0..	24	0	5	10..	25	0
Cape, good......	2	0 .	2	2	1	15..	1	18
inferior ..	1	8..	1	18	1	2..	1	14
Barbadoes	2	0..	24	0	2	0..	22	10
Ambergris, gray, p. oz.	34s.	0d.	42s.	0d.	30s.	0d.	42s.	0d.
Angelica Root. pr. cwt.	28	0..	40	0	35	0..	42	0
Aniseed, China star ..	70	0..	80	0	95	0..	100	0
German, &c.	32	6..	40	0	32	0	42	6
Balsam, Canada, pr. lb.	1	3..	0	0	0	10..	1	0
Capivi	1	10..	2	0	1	10..	2	0
Peru........	4	5..	4	7	4	10..	4	11
Tolu	4	0..	4	3	3	10..	4	0
Bark, Cascarilla, cwt.	24	0..	49	0	30	0..	46	0
Peru. crwn. & gry. pr. lb.	1	7..	2	8	1	10..	3	3
Calisaya, flat ..	3	10..	4	0	3	4..	3	7
quill ..	3	6..	3	10	3	0..	3	6
Carthagena	1	2..	2	0	0	8..	1	0
Pitayo	1	6..	2	2	0	10..	1	10
Red	2	0..	6	0	2	0..	6	0
Bay Berries, per cwt,	22	0..	40	0	50	0..	52	0
Borax..............	20	0..	35	0	20	0..	37	6
Tincal	32	0..	50	0	30	0..	45	0
Bucca Leaves ....lb.	0	4 ..	1	3	0	4½	1	0
Burgundy Pitch, p. cwt.	0	0..	0	0	0	0..	0	0
Camomile Flowers..	40	0..	90	0	100	0	170	0
Camphor, China....	190	0	195	0	175	0	180	0
Canella Alba........	22	0..	42	0	25	0..	45	0
Cantharides ..per lb.	2	2..	2	4	2	7..	2	8
Cardmms. Mlbr. good	4	7..	4	11	4	8..	5	0
inferior ..	4	0..	4	6	4	0..	4	6
Madras ..	2	7..	4	0	3	5..	4	4
Ceylon ...	3	9..	3	10	3	9..	0	0
Cassia Fistula. pr. cwt.	20	0..	35	0	28	0..	36	0
Castor Oil, 1st pale, lb.	0	5¾	0	6¼	0	6½	0	7¼
second	0	5¼	0	5½	0	6..	0	6¾
infr. and dark	0	4¾	0	5	0	5	0	5¾
Bombay, in casks	0	4..	0	4½	0	3¾	0	4¼
Castorum	1	0..	28	0	5	0..	20	0
China Root..per cwt.	9	0..	10	0	9	0..	10	0
Coculus Indicus	12	0..	13	0	12	6..	14	6
Cod-liver Oil, per gal.	4	0..	5	3	4	9..	7	0
Colocynth, apple, p. lb.	1	0..	1	4	0	11..	1	9
Colombo Root, per cwt.	15	0..	47	6	12	0..	45	0
Corosus Nuts, per cwt.	15	0..	47	6	21	0..	26	0
Cream Tartar, per cwt.								
French	130	0	132	6	145	0	147	6
Venetian	135	0..	0	0	150	0	152	6
gray	122	6	125	0	127	6	132	6
brown..........	115	0	120	0	115	0	120	0
Croton Seed.........	80	0	105	0	56	0..	70	0
Cubebs	130	0	140	0	210	0	215	0
Cummin Seed	36	0..	40	0	22	0..	30	0
Dividivi............	12	0..	13	0	11	0..	13	0
Dragon's blood, reed.	£7	0	£14	0	£7	0	£14	10
lump	5	0..	12	0	5	0..	12	10
Galangal Root......	1	4..	1	5	1	12..	1	14
Gentian Root	0	16..	0	18	0	16..	0	17
Ginger, preserved, in bd.	s.	d.	s.	d.	s.	d.	s.	d.
(duty 2d. lb.) per lb.	0	6½	0	8	0	9..	0	10
Guinea Grains.								
per cwt.	46	0..	48	0	37	0..	40	0
Honey, Narbonne ..	70	0..	95	0	70	0..	90	0
Cuba	36	0..	45	0	22	0..	32	0
Jamaica	40	0..	60	0	26	0..	54	0
Ipecacuanha, per lb..	3	4..	3	7	3	9..	3	10
Isinglass—								
Brazil............	1	6..	3	10	1	10..	4	4
East India........	1	0..	3	8	1	10..	4	6
West India	3	2..	3	9	3	10..	4	4
Russian, long staple	12	0..	13	0	13	0..	14	0
leaf......	9	6..	12	0	11	6..	13	0
Simovia..	2	0..	2	6	1	6..	2	6
Jalap..............	4	3..	4	9	4	6 ..	4	9

PRICE CURRENT—*continued.*

	1861.				1860.			
DRUGS.	s.	d.	s.	d.	s.	d.	s.	d.
Juniper Berries, p. cwt.								
German and French	10	0..	10	6	9	0..	9	6
Italian	10	0..	12	0	9	0..	10	0
Lemon Juice, per deg.	0	1 ..	0	1⅛	0	0⅞..	0	0
Lichen Islandicus, lb.	0	0..	0	0	0	0..	0	0
Liquorice... per cwt.								
Spanish	83	0..	90	0	85	0..	95	0
Italian	85	0..	95	0	95	0..	100	0
Macaroni, Genoa, p.lb.	0	3..	0	6	0	4..	0	6
Naples	0	4..	0	5½	0	4..	0	5½
Manna, flaky	3	3..	3	10	4	9..	5	3
small	1	6..	2	0	2	6..	2	7
Musk ....per oz.	26	0..	34	0	22	0..	27	0
Myrabolans, per cwt.	8	6..	12	0	8	6..	12	0
Nux Vomica	9	0..	10	6	13	6..	15	0
Opium, Turkey	14	0..	17	6	20	0..	24	0
Egyptain	6	0..	13	0	6	0..	14	0
Orris Root.. per cwt.	27	0..	30	0	30	0..	36	0
Pellitory Root	0	0..	0	0	0	0..	0	0
Pink Root....per lb.	1	3..	1	4	1	3..	0	0
Quassia (bit.wd.) ton	£3	10..	4	0	£10	0	£12	0
Rhatania Root . p lb.	0s.	8d.	0s.	9d	0s.	6d.	0s.	8d
Rhubarb, China, rnd.	1	0..	2	9	1	0..	3	0
flat..	1	2..	3	0	1	4..	3	2
Dutch, trimd.	3	3..	3	6	3	5..	3	9
Russian	11	6..	0	0	13	6..	14	6
Saffron, Spanish	53	0..	54	0	50	0..	60	0
Salep......per cwt.	£13	0s.	£14	0	£9	0	£12	0
Sarsaparilla, Lima..	0s.	10d..	1s.	2d	0s.	10d..	1s.	2d
Para	0	10..	1	2	0	11..	1	2
Honduras	0	11..	1	6	0	11..	1	4
Jamaica .	1	3..	2	5	1	2..	2	6
Sassafras....per cwt.	10	0..	12	0	9	0..	10	0
Scammony .. per lb.								
virgin	28	0..	34	0	30	0..	33	0
second	14	0..	24	0	14	0..	26	0
Seedlac	50	0..	70	0	45	0..	55	0
Seneka Root	2	2..	0	0	2	0..	2	2
Senna, Calcutta	0	1½..	0	2½	0	2..	0	2½
Bombay	0	2½..	0	3½	0	2..	0	3½
Tinnevelly	0	2¾..	0	10	0	4..	0	6¾
Alexandria	0	4..	0	6	0	4..	0	6
Shellac, orange, pr.ct.	190	0	210	0	180	0..	192	6
liver & garnet.	150	0	170	0	180	0..	210	0
block	120	0	145	0	160	0..	177	6
bttn.dk.to mid.	150	0	158	0	165	0..	180	0
good and fine..	190	0	195	0	180	0..	200	0
Snake Root	1	2 ..	1	3	0	10..	1	2
Spermaceti, refined..	1	2..	1	4	1	10..	0	0
Squills	0	1..	0	2	0	2..	0	3
Sticklac	70	0..	100	0	65	0..	85	0
Tamarinds, E. India.	10	0..	12	0	9	6..	11	6
W.I. per cwt.	16	0..	32	0	15	0..	40	0
Terra Japonica,								
Gambier.. per cwt.	16	6..	18	6	16	6..	17	0
Cutch	23	6..	24	0	27	0..	28	0
Valerian Root, Engl.	20	0 .	40	0	20	0..	40	0
Vanilla,								
Mexican .. per lb.	30	0..	70	0	40	0..	80	0
Brazil	0	0..	0	0	14	0..	20	0
Wormseed ..per cwt.	20	0..	0	0	23	0..	0	0
FARINA, Scotch	20	0..	25	0	16	0..	16	6
GUM ....per cwt.	£.	s.	£.	s.	£.	s.	£,	s.
Ammoniac, drop	2	10..	5	0	2	15..	5	0
lump	0	15..	1	15	1	0..	2	0
Animi, fine pale	15	0..	16	0	14	10..	15	10
bold amber..	13	0..	14	10	13	0..	15	0
medium	9	0..	11	11	8	10..	11	10
small & dark.	5	0..	8	5	4	0..	8	0
ordinary dark	2	10..	5	0	2	10..	5	0
Arabic, E.I.f.palepickd	2	10..	3	0	2	10..	3	2
unsorted, good to f.	1	18..	2	10	1	16..	2	3
red and mixed	1	4..	1	10	1	4..	1	16
siftings	0	0..	0	0	0	18..	1	3
Turkey, pkd.gd.to fi.	5	10..	7	10	5	10..	7	10
second & infr.	2	2..	5	5	2	5..	5	5
in sorts	1	10..	2	3	1	12..	1	19
Gedda	1	6..	1	7	1	9..	1	10
Barbary, white	1	11..	1	13	1	10..	1	12
brown	1	8..	1	10	1	8..	1	10
Cape	0	16..	0	18	0	15..	0	18
Assafœtida, fair to gd.	1	0..	5	0	1	0..	4	10
Benjamin, first qual.	18	10..	34	0	18	0..	34	0

	1861.				1860.			
GUM.	£.	s.	£.	s.	£.	s.	£.	s.
Benjamin, 2nd qual.	8	5..	16	10	8	10..	16	10
3rd ,,	3	0..	7	10	3	0..	7	10
Copal, Angola red ..	5	0..	6	10	4	7..	4	15
pale..	4	5..	5	0	3	6..	3	10
Benguela	4	10..	5	10	3	10..	3	15
Sierra Leone lb.	0s.	10d.	1s.	9d	1s.	0d.	1s.	9d
Manilla, pr.ct.	15	0..	43	0	15	0..	43	0
Dammar, pale, pr. ct.	44	0..	52	0	40	0..	45	0
	£.	s.	£.	s.	£.	s.	£.	s.
Galbanum	7	0..	9	0	8	0..	10	0
Gamboge, pkd. pipe .	6	0..	8	0	5	10..	8	10
in sorts ..	4	0..	5	10	4	0..	5	5
	s.	d.	s.	d.	s.	d.	s.	d.
Guaiacum ....per lb.	0	8..	1	6	0	10..	1	9
Kino ...... per cwt.	95	0 .	120	0	90	0..	105	0
Kowrie	18	0..	22	0	13	0..	14	6
Mastic, pkd., per lb..	7	6..	8	6	8	6..	9	6
Myrrh, gd.& fi., pr. ct.	140	0	180	0	160	0	230	0
sorts	80	0	130	0	90	0	150	0
Olibanum, pale drop.	60	0..	70	0	45	0..	52	0
amber & yellow	40	0..	54	0	29	0..	40	0
mixed & dark..	12	0..	26	0	10	0..	24	0
Senegal	56	0..	63	0	28	0..	33	0
Sandrac	90	0	105	0	94	0	120	0
Tragacanth, leaf	180	0	340	0	190	0	290	0
in sorts .	100	0	130	0	100	0	126	0
LAC DYE, per lb. D. T.	1	10½..	1	11	1	10½..	2	0
B Mirzapore	1	6..	1	7	1	7..	1	9
Other good and fine..	1	0..	2	5	1	1..	2	3
Ord. & Native marks	0	2..	0	11	0	4 ..	1	0
OILS..........per tun	£.	s.	£.	s.	£.	s.	£.	s.
Seal, pale	39	10..	40	0	36	0..	0	0
yellow	34	0..	35	0	31	10..	32	10
brown	32	10..	34	0	30	0..	0	0
Sperm, body	103	0	105	0	99	0..	99	10
headmatter	104	0..	0	0	101	0 .	102	0
Cod	36	10..	0	0	35	0..	36	0
Whale, Greenland ..	0	0..	0	0	37	0..	37	5
South Sea, pale	38	0..	39	0	32	10..	0	0
yellow	34	0..	36	0	30	10..	0	0
brown	33	0..	0	0	28	0..	29	0
E. I. Fish	30	0..	0	0	27	10..	28	0
Olive, Galipoli ..tun	60	0..	0	0	61	0..	0	0
Trieste	58	0..	59	0	58	0..	59	0
Levant	55	0..	56	10	55	0..	0	0
Mogadore	52	0..	53	0	55	0..	0	0
Spanish	58	0..	0	0	57	10..	59	0
Sicily	57	10..	0	0	57	10..	58	10
Florence, pr. ½-chst.	0	16..	0	0	0	18..	1	0
Cocoanut, Cochin, tun	50	0..	0	0	44	0..	44	10
Ceylon	48	0..	0	0	42	0..	0	0
Sydney ..	44	0..	47	6	36	0..	41	0
Ground Nut and Gin.								
Bombay	38	15..	0	0	38	0..	0	0
Madras	40	0..	0	0	44	0..	45	0
Palm, fine	44	5..	44	10	46	0..	0	0
Palm Nut	38	0..	39	0	35	0..	0	0
Linseed	28	0..	0	0	27	15..	0	0
Rapeseed, Engl. pale.	40	0..	0	0	41	0..	0	0
brown	37	5..	0	0	40	0..	0	0
Foreign do.	39	0..	42	0	41	10..	0	0
brown	37	10..	0	0	40	10..	0	0
Lard	63	0..	0	0	63	0..	0	0
Tallow	32	10..	0	0	30	0..	0	0
Rosin	0	0..	0	0	7	5..	0	0
OILS, Essential;	s.	d.	s.	d.	s.	d.	s.	d.
Almond, essen. pr. lb.	30	0..	31	0	30	0..	31	0
expressed..	1	0..	0	0	1	0..	0	0
Aniseed	6	11..	7	0	8	3..	8	4
Bay........ per cwt.	122	6..	0	0	90	0	100	0
Bergamott....per lb.	6	6..	14	0	6	6..	11	0
Cajeputa, bond, pr.oz.	0	1½..	0	1¾	0	1..	0	1¼
Caraway .... per lb.	4	3..	6	0	4	3..	6	0
Cassia	9	4..	9	6	14	6..	0	0
Cinnamon (in b.) p.oz.	3	0..	4	3	2	9..	4	3
Cinnamon Leaf	0	1..	0	2½	0	2 ..	0	2½
Citronel	0	4¾..	0	5¼	0	3¼..	0	3¾
Clove	0	4¼..	0	0	0	2½..	0	3¾
Croton	0	3 ..	0	4	0	4¼..	0	4½
Juniper .....per lb.	1	10..	4	0	3	0..	5	0
Lavender	2	6..	5	0	2	6..	5	0
Lemon	5	0..	10	6	5	0..	11	0
Lemongrass..per oz.	0	5½..	0	7	0	5½..	0	6½

PRICE CURRENT—*continued.*

OILS, Essential,	1861. s.	d.	s.	d.	1860. s.	d.	s.	d.
Mace, ex	0	2	0	0	0	1¾	0	2
Neroli	6	0	9	0	6	0	10	0
Nutmeg	0	1¾	0	2	0	2¼	0	3
Orange ......per lb.	7	0	8	0	10	2	11	0
Otto Roses ..per oz.	16	0	25	0	16	0	26	0
Peppermint ..per lb.								
American	7	6	15	0	8	0	13	6
English	35	0	43	0	24	6	30	0
Rhodium ....per oz.	3	9	6	0	3	9	6	0
Rosemary ....per lb.	1	10	3	0	2	0	3	0
Sassafras	3	0	3	6	3	6	4	0
Spearmint	5	0	12	6	5	0	12	0
Spike	1	3	1	6	1	3	1	6
Thyme	1	9	2	6	2	3	3	0
PITCH, British, pr. cwt.	6	0	6	3	6	0	6	3
Swedish	10	3	0	0	10	3	0	0
SALTPETRE, per cwt.								
Bengal, 6 p.c. or under	36	0	37	6	43	6	44	6
over 6 per cent.	33	0	36	0	39	0	43	0
Madras	32	0	34	6	37	0	41	0
Bombay	30	6	34	6	31	0	34	6
British-refined	38	0	38	6	42	6	44	0
Nitrate of Soda	13	0	13	6	15	0	16	6
SEED, Canary ...p. qr.	38	0	48	0	44	0	52	0
Caraway, English, p.c.	28	0	30	0	0	0	0	0
German, &c.	26	0	34	0	30	0	38	0
Clover, English, red..	50	0	60	0	44	0	58	0
white..	55	0	80	0	86	0	95	0
Germ. & French, red	42	0	56	0	40	0	52	0
white..	60	0	80	0	80	0	95	0
Coriander	14	0	17	6	0	0	0	0
East India	13	0	16	0	11	6	12	6
Hemp	44	0	46	0	34	0	36	0
Linseed, English, p. qr.	0	0	0	0	0	0	0	0
Black Sea and Azof	50	0	0	0	50	0	50	6
Calcutta	50	6	51	0	49	6	50	6
Bombay	53	6	54	0	52	6	53	0
Egyptian	49	0	0	0	48	0	0	0
St. Ptrsbg.. Morshnk	50	0	0	0	48	0	49	0
Archangel	46	0	47	0	37	0	38	0
Riga	42	0	44	0	0	0	0	0
Mustard, brown, p. bhl	8	0	12	0	10	0	13	0
white	8	0	12	0	11	0	14	0
Niger	48	0	0	0	41	0	42	0
Poppy, E.I. ..per qr.	57	0	58	0	50	0	52	0
Rape, English	0	0	0	0	0	0	0	0
Danube	60	0	0	0	53	0	0	0
Calcutta, fine	52	0	53	0	51	6	0	0
Bombay, Guzerat	59	0	61	6	58	0	59	0
Feroze. & Scinde	48	0	55	0	46	0	55	0
Teel, Sesame or Gngly.	56	0	64	0	48	0	66	0
Cotton ......per ton	7	0	0	0	5	10	5	15
Gnd. Nut Kernels, tn.	300	0	310	0	310	0	320	0
SOAP, Lond. yel. p. cwt.	21	0	38	0	21	0	38	0
mottled	34	0	38	0	36	0	38	6
curd	52	0	0	0	52	0	0	0
Castile	37	0	40	0	37	0	40	0
Marseilles	40	0	41	0	40	0	41	0
SOY, China ..(per gal.)	2	9	2	10	4	3	4	7
Japan	1	4	1	6	0	0	0	0
SPICES, duty free, except pepper,								
Cassia Lignea, p. cwt.	83	0	90	0	90	0	98	0
Vera	12	0	50	0	12	0	26	0
Buds	190	0	0	0	180	0	185	0
Cinnamon, per lb.								
Ceylon, 1st quality.	1	5	2	5	1	7	2	3
2nd ditto ..	1	2	1	8	1	1	1	9
3rd ditto ..	0	9	1	3	0	10	1	4
Tellicherry	0	10	1	0	0	9	0	11
Cloves, Penang	1	1½	1	4	1	2	1	5
Amboyna	0	4½	0	5½	0	4¼	0	5¾
Zanzibar	0	3¾	0	4⅝	0	3⅝	0	4
Ginger	£	s.	£	s.	£	s.	£	s.
Jamaica, fine pr. cwt.	7	0	9	10	8	0	10	0
ord. to good	2	10	6	0	4	0	7	10
African	36s.	6d.	37s.	0d.	35s.	0d.	37s.	0d.
Bengal	30	0	32	0	23	6	25	0
Malabar	36	0	0	0	33	0	34	0
Cochin	40	0	105	0	77	0	130	0
Mace, 1st qlty. lb.	1	6	1	10	1	9	2	9
2nd. & infr.	0	9	1	4	1	1	1	8
Nutmegs per lb.								
brown Penang, &c.	0	11	4	0	1	6	4	0
limed	0	10	2	6	1	4	2	6

SPICES,	1861. s.	d.	s.	d.	1860. s.	d.	s.	d.
Pepper (duty 6d. pr. lb.)								
Black, in bond								
Malabar	0	4¼	0	4¾	0	4½	0	5½
Aleppee	0	4¼	0	4½	0	4¼	0	4⅞
Penang & Batavia	0	3⅜	0	3¾	0	3⅞	0	4⅛
Singapore	0	3¾	0	4	0	4	0	4⅛
White, Tellicherry.	0	10¼	1	5	0	9¾	1	0
Other sorts	0	5¾	0	6½	0	6	0	7¼
Cayenne	1	1	1	8	1	0	1	4
Pod, S. Leone pr. c.	28	0	32	0	30	0	36	0
Zanzibar	70	0	80	0	57	0	61	0
Long	32	0	34	0	35	0	38	0
Pimento, mid. to good	0	2¾	0	3⅛	0	3⅝	0	3⅞
ordinary	0	2½	0	2⅝	0	3½	0	0
SPONGE, Turk. f. pkd.	20	0	26	0	20	0	26	0
fair to good	9	0	18	0	7	0	18	0
ordinary ..	3	0	8	0	3	0	8	0
Bahama ..	0	3	1	3	0	3	1	0
TEA (duty 1s. 5d. per lb.) in bond.								
Congou, ordinary	0	7	0	8	1	2	1	4
good ordinary	0	10	11	0	1	4¼	1	5
but middling.	1	0	1	0	1	5	1	6
blackish leaf	1	0½	1	3	1	6¼	1	7
ditto strong	1	6	1	8	1	8	1	11
ditto to extra fine..	1	9	2	5	2	0	2	6
Ning Yong and Oolong	1	6	2	0	1	7	2	4
Souchong, ordinary..	0	11	1	0	1	5	1	6
fair to fine	1	3	1	10	1	7	2	4
finest	2	0	3	1	2	0	3	0
Flowry Pekoe, ordinary	1	2	1	4	0	0	0	0
fair to good	1	5½	2	0	2	0	2	6
fine to finest	2	6	5	0	3	0	4	6
Caper, scented, in bxs.	0	8	2	1	1	1½	2	6
Orange Pekoe, plain..	0	9	1	2	1	0	1	6
scented	1	2	2	3	1	4	2	6
Twankay, ordy. Canton	0	0	0	0	0	0	0	0
common to good..	0	9	1	2	0	10	0	11
fine to Hyson kind.	1	3	1	4	1	3	1	4
Hyson Skin, common	0	8	0	10	0	10	0	11
good to fine	0	11	1	1	1	0	1	1
Hyson, ordy. to comn.	1	4	1	7	1	7	1	8
fair to fine	1	8	2	6	2	0	2	6
finest	2	9	4	6	2	9	4	0
Young Hys. Boh. kind	0	9	0	11	0	7	0	9
good to fine	1	2	2	3	0	11	2	4
Imperial	1	0	2	2	1	0	2	2
Gunpowder	0	10	3	9	1	0	3	9
Assam	1	4	4	6	1	9	5	0
TURPENTINE,								
Rough.... per cwt.	9	0	9	3	9	1½	9	3
Spirits, English	30	0	30	6	35	6	0	0
American, in casks	31	0	31	6	36	6	0	0
WAX, Bees, English ..	£8	5	£8	10	£8	5	£8	10
German	8	0	8	5	8	0	8	10
American	9	0	10	0	8	10	10	0
white fine	10	0	10	10	10	0	10	15
Jamaica	8	15	9	5	9	0	9	10
Gambia	9	0	0	0	8	15	9	10
Mogadore	6	10	8	0	6	0	7	10
East India	7	10	9	5	7	10	9	0
ditto, bleached	9	10	11	0	9	0	10	10
vegetable, Japan	2	16	3	4	3	5	3	10
WOOD, DYE, bar, pr. tn.	0	0	0	0	3	10	0	0
Brazil. first quality	70	0	75	0	80	0	85	0
second quality..	55	0	60	0	60	0	0	0
logs	20	0	21	0	20	0	35	0
Braziletto	4	0	5	10	4	0	5	10
Camwood	20	0	24	0	26	0	29	0
Ebony, Green	7	0	8	10	9	10	10	0
Fustic, Cuba	8	10	9	0	8	15	9	5
Jamaica	5	10	0	0	5	10	5	15
Savanilla	5	0	5	5	5	5	5	10
Zante	5	0	7	0	9	10	11	0
Logwood, Campeachy	6	10	6	15	6	15	0	0
Honduras	0	0	0	0	5	5	0	0
St. Domingo	5	0	5	5	5	0	0	0
Jamaica	4	10	4	15	4	10	4	15
Nicaragua, lar. & sol.	10	10	11	0	12	0	13	10
small	0	0	0	0	6	0	8	0
Lima, first pile	12	0	12	10	13	0	14	0
second pile ..	10	0	10	10	12	10	13	0
Red Sanders	6	5	6	7 6*d*	5	10	6	0
Sapan, Bimas	6	10	8	10	7	10	9	0
Siam, &c.	6	15	9	10	6	15	8	10

PATENTS

Selected and arranged by WEATHERDON & Co., Patent Agents, 77, Chancery Lane.

LETTERS PATENT.

DRUGS, CHEMICALS, ETC.

1913 Webster, J., Birmingham, improvements in the manufacture of prussiate of potash and prussian blue.

1951 Pousier, C. P. E., Paris, improvements in the manufacture of alkaline and other bichromates.

1985 Petrie, W., Woolwich, improvements in the manufacture of sulphuric acid, and in apparatus employed therein, parts of which improvements are applicable to the obtaining of draught, to the condensing of gases, and to the constructing of flues.

2104 Belton, P. M., New York, the manufacture of compound, to be used as a substitute for animal charcoal in refining sugar and otherwise.

2612 Cobley, T., Germany, improvements in the manufacture of white lead (meaning carbonates of lead).

INDIA RUBBER AND GUTTA PERCHA.

2052 Truman, E. T., Old Burlington-street, an improved method of cleansing and purifying gutta percha and other like substances and their compounds, and an improved apparatus to be employed therein.

MISCELLANEOUS.

1956 Stuart, J., Poplar, improvements in treating hydro-carbon oils.

1969 McKibbin, R. D., Blackfriars, an improved waterproof and non-inflammable material, applicable to roofing and to other purposes, for which felt, tarpauling, oil-cloth, and such like materials are now used.

2017 Perkins, A. M., Gray's-inn-road, improvements in apparatus for distilling sea and other water.

2026 Cole, R. J., Bayswater, improvements in the construction of brushes.

2091 Kirrage, W., and Ripley, A., Vauxhall, the amalgamation of certain materials, forming a plastic composition, applicable to works of the fine arts, building purposes, imitations of marbles, ancient carvings, and various other uses.

2162 Stevens, C., Welbeck-street, an improved impermeable oil varnish.

2171 Weiskopf, E., Hungary, improvements in the manufacture of certain kinds of artificial combustible for lighting of wood and coal.

2217 Rosinsky, N., St. Petersburgh, a new kind of oil for cosmetics, soaps, and other like articles for the toilet.

2608 Barff, F. S., Dublin, improvements in the production of artificial stone, which improvements are also applicable to the preservation of stone, bricks, tiles, and other analogous substances or materials.

2934 Jaques, J. A., Fanshawe, J. A., Tottenham, and Jaques, G., Bromley, Middlesex, an improved mode of and apparatus for cooling liquids.

2935 Fanshawe, J. A., and Jaques, J. A., Tottenham, improvements in brushes and other scrubbing and rubbing furnaces.

PROVISIONAL PATENTS.

DRUGS, CHEMICALS, ETC.

2708 Prentiss, E. F., America, a new detergent.

20 Cobley, T., Germany, improvements in the mode of obtaining or manufacturing commercial salts of lead directly from the ores of lead.

209 Drevet, C. A., Rouen, improvements in the manufacture of sulphurous acid, sulphites, bisulphites, and sulphuric acid, and in the apparatus employed therein; and in the application of one of the products of such manufacture to the bleaching of textile, animal, and vegetable substances.

330 Jullion, J. L., Tynemouth, improvements in the treatment of soda waste and sulphurets.

335 Leidemann, A., and Lange, T., Newcastle-upon-Tyne, the manufacture of sub or oxi-sulphate of lead.

INDIA RUBBER AND GUTTA PERCHA.

263 Chatterton, J., Highbury, improvements in treating gutta percha, india rubber, and compounds containing one or both of these substances, and in machinery and apparatus employed therein.

MISCELLANEOUS.

2598 Verwey, A., Croydon, improvements in the manufacture of soap.

2988 Duméry, C. J., Paris, a new or improved apparatus for extracting from water or any liquid the bodies in dissolution or in suspension contained therein.

36 Williams, W. M., Handsworth, an improvement or improvements in treating coal and other bituminous materials and peat, for the purpose of obtaining solid and liquid hydrocarbons therefrom.

46 Rattray, W., Aberdeen, improvements in preserving organic substances.

58 Leroy, C. N., Paris, an improved grease for lubricating the frictional surfaces of machinery.